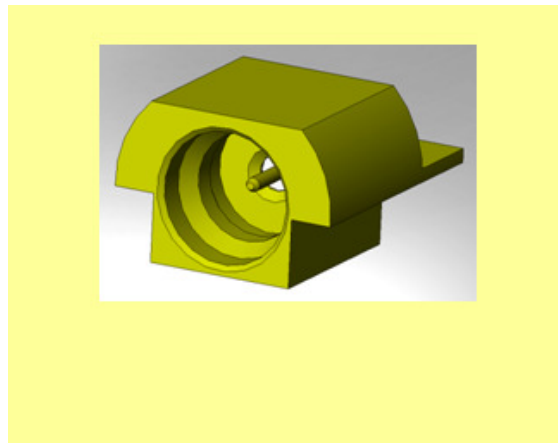
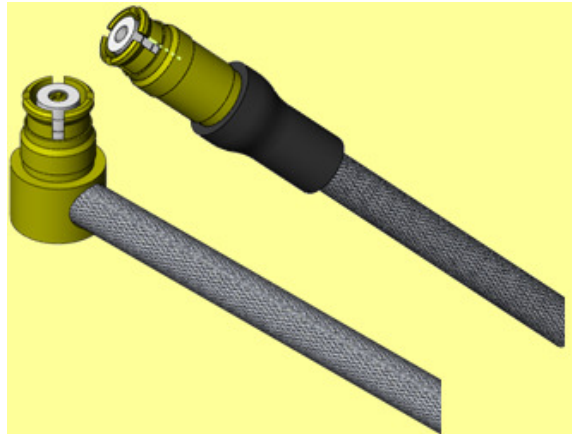




Project Number: Design Qualification Test Report	Tracking Code: 164939_Report_Rev_3
Requested by: John Liao	Date: 7/11/2013
Part #: RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3 RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3	Tech: Peter Chen
Part description: RF405\SMP	Qty to test: 45
Test Start: 10/20/2011	Test Completed: 11/10/2011



## Design Qualification Test Report

**RF405\SMP**

**RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3  
RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3**

## 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.

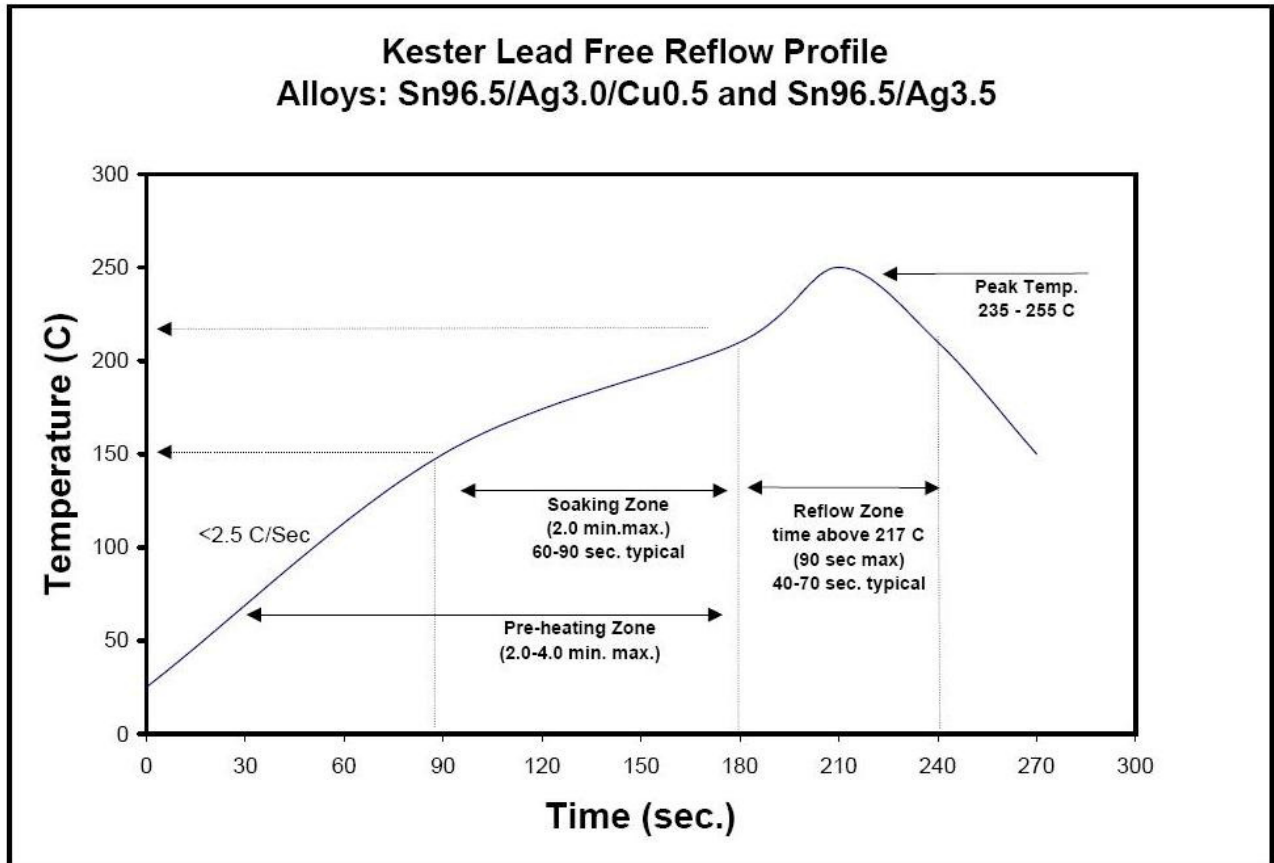
### APPLICABLE DOCUMENTS

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.
- 10) Samtec Test PCBs used: PCB-103504-TST-XX

**TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)**



**FLOWCHARTS****Gas Tight**

TEST STEP	GROUP A1 (8 MIN) RF405-00SJ7-020400-0040 & SMP-PF-P-HH-ST-EM3
01	LLCR-1 (both center and outer)
02	Gas Tight
03	LLCR-2 (both center and outer)

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

**Thermal Aging**

TEST STEP	GROUP C1 (8 MIN) RF405-00SJ7-020400-0040 & SMP-PF-P-HH-ST-EM3
01	Contact Gaps
02	Forces - Mating / Unmating
03	LLCR-1(both center and outer contact )
04	Thermal Aging (Mated and Undisturbed)
05	LLCR-2(both center and outer contact)
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 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****Durability/Mating/Unmating/Gaps**

TEST	GROUP D1	GROUP D3
STEP	(8 MIN) RF405-00SJ7-00SJ7-0305 & SMP- PF-P-HH-ST-EM3	(8 MIN) RF405-00SJ7-020400-0140
01	Contact Gaps	Forces - Unmating RNG from Body
02	LLCR-1	
03	Forces - Mating / Unmating	
04	25 Cycles	
05	Forces - Mating / Unmating	
06	25 Cycles (50 Total)	
07	Forces - Mating / Unmating	
08	25 Cycles (75 Total)	
09	Forces - Mating / Unmating	
10	25 Cycles (100 Total)	
11	Forces - Mating / Unmating	
12	Clean w/Compressed Air	
13	Contact Gaps	
14	LLCR-2	
15	Thermal Shock (Mated and Undisturbed)	
16	LLCR-3	
17	Cyclic Humidity (Mated and Undisturbed)	
18	LLCR-4	
19	Forces - Mating / Unmating	

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

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

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

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

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

**Mating / Unmating Forces = EIA-364-13**

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

**LLCR = EIA-364-23, LLCR**

**20 mV Max, 100 mA Max**

**Use Keithley 580 or 3706 in 4 wire dry circuit mode**

Tracking Code: 164939_Report_Rev_3	Part #: RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3 RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3
Part description: RF405\SMP	

**FLOWCHARTS Continued**

**IR & DWV**

TEST STEP	GRUPE1 (2 MIN) RF405-00SJ7-020400-0140 & SMP-PF-P-HH-ST-EM3	GRUPE2 (2 MIN) RF405-00SJ7-020400-0140	GROUP E3 (2 MIN) SMP-PF-P-HH-ST-EM3	GROUP E4 (2 MIN) RF405-00SJ7-020400-0140 & SMP-PF-P-HH-ST-EM3
	500V Min. RMS - Pin to Ground	Break Down - Pin to Ground	Break Down - Pin to Ground	500V MIN RMS - Pin to Ground
01	DWV(500VRMS Min) /Break Down Voltage	DWV(500VRMS Min) /Break Down Voltage	DWV(500VRMS Min) /Break Down Voltage	IR & DWV at 500VRMS Min. (on both: mated sets and on each connector unmated)
02				Thermal Shock (Mated and Undisturbed)
03				IR & DWV at 500VRMS Min. (on both: mated sets and on each connector unmated)
04				Cyclic Humidity (Mated and Undisturbed)
05				IR & DWV at 500VRMS Min. (on both: mated sets and on each connector unmated)

Tracking Code: 164939_Report_Rev_3	Part #: RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3 RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3
Part description: RF405\SMP	

**FLOWCHARTS Continued**

<b>GROUP E5</b>  (2 MIN) <b>RF405-00RJ7-020400-0140 &amp; SMP- PF-P-HH-ST-EM3</b>	<b>GROUP E6</b>  (2 MIN) <b>RF405-00RJ7-020400-0140</b>	<b>GROUP E7</b>  (2 MIN) <b>RF405-00RJ7-020400-0140 &amp; SMP- PF-P-HH-ST-EM3</b>
<b>500V MIN RMS - Pin to Ground</b>	<b>Break Down - Pin to Ground</b>	<b>500V MIN RMS - Pin to Ground</b>
DWV(500VRMS Min) /Break Down Voltage	DWV(500VRMS Min) /Break Down Voltage	IR & DWV at 500VRMS Min. (on both: mated sets and on each connector unmated)
		Thermal Shock (Mated and Undisturbed)
		IR & DWV at 500VRMS Min. (on both: mated sets and on each connector unmated)
		Cyclic Humidity (Mated and Undisturbed)
		IR & DWV at 500VRMS Min. (on both: mated sets and on each connector unmated)

DWV on Group E1 to be performed at Test Voltage

DWV test voltage is equal to 75% of the lowest break down voltage from Groups E2 or E3 OR 500V RMS which ever is higher.

Thermal Shock = EIA-364-32, Method A, Test Condition III:

Except: -65oC to +165oC 1/2 hour dwell, 5 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, Method D, Test Condition 1

Tracking Code: 164939_Report_Rev_3	Part #: RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3 RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3
Part description: RF405\SMP	

### FLOWCHARTS Continued

**Normal Force**

TEST STEP	GROUP B1 Individual Contacts (10 min) SMP-J-C-G-ST-CA7-SKT	GROUP B2 Individual Contacts (10 min) SMP-J-C-G-ST-CA7-SKT + SMP-P-P-X-ST-EM3-PIN	GROUP B3 (10 MIN) SMP-J-C-F-ST-CA7-CBDY	GROUP B4 (10 MIN) SMP-J-C-F-ST-CA7-CBDY + SMP-PX-P-X-ST-EM3-SHL
01	Contact Gaps (NOM)	Contact Gaps (NOM)	Contact Gaps (MAX)	Contact Gaps (MAX)
02	Setup Approved	Thermal Aging (Mated and Undisturbed)	Setup Approved	Thermal Aging (Mated and Undisturbed)
03	Normal Force	Contact Gaps	Normal Force	Contact Gaps
04		Setup Approved		Setup Approved
05		Normal Force		Normal Force

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

Time Condition 'B' (250 Hours)

Normal Force = EIA-364-04

(Perpendicular) Displacement Force = 12.7 mm/min ± 6 mm/min

Spec is 50 N @ 1 mm displacement

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

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

Group B3 and B4: Record normal force for 0.055mm deflection and post set equivalent.

## FLOWCHARTS Continued

### Mechanical Shock / Vibration / LLCR

TEST STEP	GROUP G1 (8 MIN) RF405-00SJ7-020400-0260 & SMP-PF-P-HH-ST-EM3
01	LLCR-1 (both center and outer)
02	Shock
03	Vibration (Random)
04	LLCR-2 (both center and outer)

Mechanical Shock = EIA 364-27 Saw Tooth,

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

Vibration = EIA 364-28, Test Condition V- F (Random)

20.71g, 1.5hrs.

LLCR = EIA-364-23, LLCR

Center: 6.0 Milliohms, Maximum (Value assumes bulk resistance of conductors in the path are removed.)

Outer contact: 2.0 Milliohms, Maximum (Value assumes bulk resistance of conductors in the path are removed.)

Outer conductor to connector body: 0.5 Milliohms, Maximum

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

### Shock / Vibration / nanoSecond Event Detection

TEST STEP	GROUP H1 (8 MIN) RF405-00SJ7-020400-0240 & SMP-PF-P-HH-ST-EM3
02	Shock
03	Vibration (Random)

Mechanical Shock = EIA 364-27 Saw Tooth,

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

Vibration = EIA 364-28, Test Condition V- F (Random)

20.71g, 1.5hrs.

Event detection requirement during Shock / Vibration is 50 nanoseconds minimum

Tracking Code: 164939_Report_Rev_3	Part #: RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3 RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3
Part description: RF405\SMP	

### FLOWCHARTS Continued

**Connector Pull**

TEST STEP	GROUP 3 a 5 Pieces  SMP-J-C-G-ST-CA7 -SKT (Terminated with cable)	GROUP 3 b 5 Pieces  SMP-J-C-G-ST-CA7 -SKT (Terminated with cable) & SUB- SMP-J-C-GF-ST-CA7	GROUP 3 c 5 Pieces  RF405-00SJ7-00SJ7-0305	GROUP 3 d 5 Pieces  RF405-00RJ7-00RJ7-0305
	Center contact only to cable 0°	Center contact only to cable 0°	SIG & GND 0° Connector to Cable	SIG & GND 0° Connector to Cable
01	Pull test, Continuity	Center contact location per SMP-J-C-XX-ST-CA7 print. Pull test, Continuity / Removal	Center contact location per SMP-J-C-XX-ST-CA7 print. Pull test, Continuity	Center contact location per SUB-SMP-J-C-XX-RA-CXX print. Pull test, Continuity

**Group 3a** Individual contact with out connector body

**Group 3b**, SKT snapped into connector body, Outer shield NOT soldered, 1.5 lbs min before contact removed from connector body, continuity must be maintained, then record removal force.

**Group 3c and 3d**: Monitor continuity on both center and outer contacts and pull; 30 lbs Min. On final pull: record forces when continuity fails on both the center and outer contacts.

For Group 3d 0° is based on the axis of the cable not the connector.

## 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 F
- 3) Power Spectral Density: 0.3 G<sup>2</sup> / Hz
- 4) G 'RMS': 20.71
- 5) Frequency: 50 to 2000 Hz
- 6) Duration: 1.5 Hours per axis (3 axis total)

### NANOSECOND-EVENT DETECTION:

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

## ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

### CONTACT GAPS:

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

### MATING/UNMATING:

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

### NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

- 1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
- 2) The contacts shall be tested in the connector housing.
- 3) If necessary, a "window" shall be made in the connector body to allow a probe to engage and deflect the contact at the same attitude and distance (plus 0.05 mm [0.002"]) as would occur in actual use.
- 4) The connector housing shall be placed in a holding fixture that does not interfere with or otherwise influence the contact force or deflection.
- 5) Said holding fixture shall be mounted on a floating, adjustable, X-Y table on the base of the Dillon TC<sup>2</sup>, computer controlled test stand with a deflection measurement system accuracy of 5.0 μm (0.0002").
- 6) The nominal deflection rate shall be 5 mm (0.2")/minute.
- 7) Unless otherwise noted a minimum of five contacts shall be tested.
- 8) The force/deflection characteristic to load and unload each contact shall be repeated five times.
- 9) The system shall utilize the TC<sup>2</sup> software in order to acquire and record the test data.
- 10) The permanent set of each contact shall be measured within the TC<sup>2</sup> software.
- 11) The acquired data shall be graphed with the deflection data on the X-axis and the force data on the Y-axis and a print out will be stored with the Tracking Code paperwork.

### INSULATION RESISTANCE (IR):

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

- 1) PROCEDURE:
  - a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
  - b. Test Conditions:
    - i. Between Adjacent Contacts or Signal-to-Ground
    - ii. Electrification Time 2.0 minutes
    - iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
- 2) MEASUREMENTS:
- 3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 1000 megohms.

**ATTRIBUTE DEFINITIONS**

The following is a brief, simplified description of attributes.

**DIELECTRIC WITHSTANDING VOLTAGE (DWV):**

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

## 1) PROCEDURE:

- a. Reference document: EIA-364-20, *Withstanding Voltage Test Procedure for Electrical Connectors*.
- b. Test Conditions:
  - i. Between Adjacent Contacts or Signal-to-Ground
  - ii. Rate of Application 500 V/Sec
  - iii. Test Voltage (VAC) until breakdown occurs

## 2) MEASUREMENTS/CALCULATIONS

- a. The breakdown voltage shall be measured and recorded.
- b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
- c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage)..

**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.

- 8) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 9) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 10) 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
- 11) 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  $50^{\circ}$  C
    - ix. The final LLCR shall be conducted within 1 hour after drying.

## ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

### CONNECTOR PULL:

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

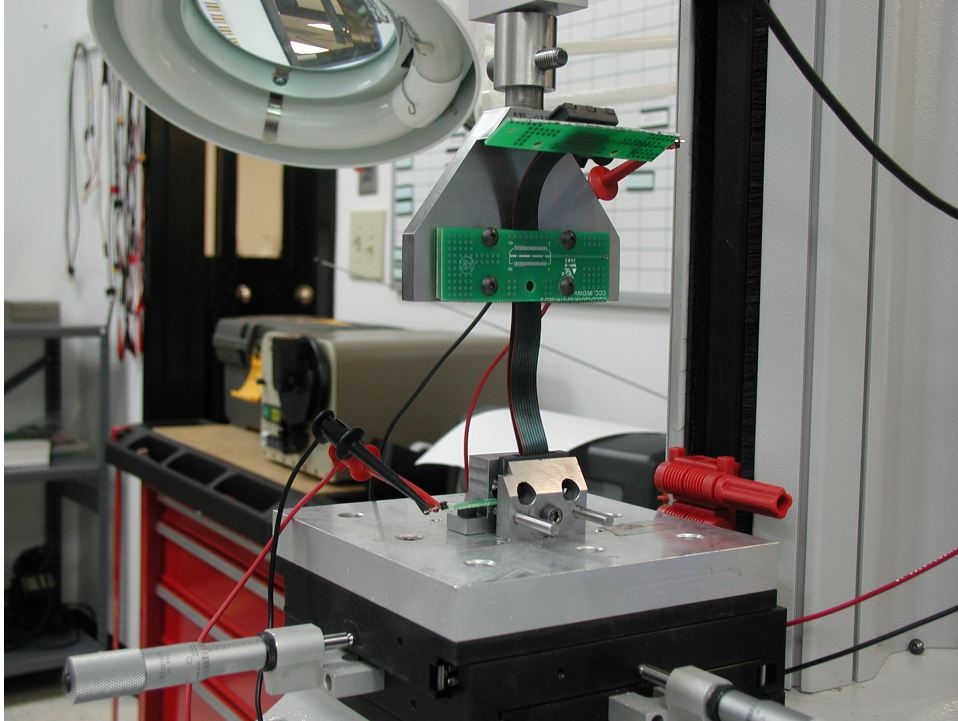


Fig. 1

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

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

**RESULTS****Mating /unmating force****Mating&Unmating durability (RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3):**

- **Initial**
  - **Mating**
    - **Min** ----- 3.18 Lbs
    - **Max** ----- 4.52 Lbs
  - **Unmating**
    - **Min** ----- 2.77 Lbs
    - **Max** ----- 3.79 Lbs
- **After 25 Cycles**
  - **Mating**
    - **Min** ----- 3.05 Lbs
    - **Max** ----- 4.08 Lbs
  - **Unmating**
    - **Min** ----- 2.75 Lbs
    - **Max** ----- 3.50 Lbs
- **After 50 Cycles**
  - **Mating**
    - **Min** ----- 2.84 Lbs
    - **Max** ----- 3.47 Lbs
  - **Unmating**
    - **Min** ----- 2.70 Lbs
    - **Max** ----- 3.30 Lbs
- **After 75 Cycles**
  - **Mating**
    - **Min** ----- 2.80 Lbs
    - **Max** ----- 3.30 Lbs
  - **Unmating**
    - **Min** ----- 2.66 Lbs
    - **Max** ----- 3.20 Lbs
- **After 100 Cycles**
  - **Mating**
    - **Min** ----- 2.66 Lbs
    - **Max** ----- 3.25 Lbs
  - **Unmating**
    - **Min** ----- 2.50 Lbs
    - **Max** ----- 3.11 Lbs
- **After Humidity**
  - **Mating**
    - **Min** ----- 2.56 Lbs
    - **Max** ----- 3.22 Lbs
  - **Unmating**
    - **Min** ----- 2.46 Lbs
    - **Max** ----- 2.98 Lbs

**Unmating forces - Unmating RNG from Body**

- **Min** ----- 1.54 Lbs
- **Max** ----- 2.49 Lbs

**RESULTS Continued**

**Thermal aging (RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3)**

- **Initial**
  - **Mating**
    - **Min** ----- 3.00 Lbs
    - **Max** ----- 4.21 Lbs
  - **Unmating**
    - **Min** ----- 2.12 Lbs
    - **Max** ----- 3.18 Lbs
- **After thermal aging**
  - **Mating**
    - **Min** ----- 2.14 Lbs
    - **Max** ----- 3.85 Lbs
  - **Unmating**
    - **Min** ----- 2.41 Lbs
    - **Max** ----- 3.05 Lbs

**Normal Force**

**Center pin at 0.07 mm deflection**

- **Initial**
  - **Min** ----- 79.50 gf                      **Set** ---- 0.0000 mm
  - **Max** ----- 113.20 gf                     **Set** ---- 0.0070 mm
- **Thermal**
  - **Min** ----- 85.39 gf                      **Set** ---- 0.0000 mm
  - **Max** ----- 113.95 gf                     **Set** ---- 0.0050 mm

**Outer pin at 0.23 mm deflection**

- **Initial**
  - **Min** ----- 299.85 gf                     **Set** ---- 0.0100 mm
  - **Max** ----- 330.58 gf                     **Set** ---- 0.0080 mm
- **Thermal**
  - **Min** ----- 317.60 gf                     **Set** ---- 0.0000 mm
  - **Max** ----- 369.32 gf                     **Set** ---- 0.0000 mm

**Connector Pull force**

**SMP-J-C-G-ST-CA7 -SKT (Terminated with cable)**

- **Min** ----- 22.58 Lbs
- **Max** ----- 25.64 Lbs

**SMP-J-C-G-ST-CA7 -SKT (Terminated with cable) & SUB-SMP-J-C-GF-ST-CA7**

- **Min** ----- 2.78 Lbs
- **Max** ----- 3.53 Lbs

**RF405-00SJ7-00SJ7-0305**

- **Min** ----- 33.17 Lbs
- **Max** ----- 44.66 Lbs

**RF405-00RJ7-00RJ7-0305**

- **Min** ----- 39.21 Lbs
- **Max** ----- 42.36 Lbs

**RESULTS Continued****LLCR Durability (16 pin LLCR test points, include 8 signal and 8 ground points)****Signal pin:**

- **Initial** ----- 17.54 mOhms Max
- **After 100 Cycles**
  - <= +5.0 mOhms ----- 8 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 ----- 8 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 ----- 8 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

**Ground Pin:**

- **Initial** ----- 4.76 mOhms Max
- **After 100 Cycles**
  - <= +5.0 mOhms ----- 8 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 ----- 8 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 ----- 8 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 (16 pin LLCR test points, include 8 signal and 8 ground points)**

**Signal Pin:**

- **Initial** ----- 17.29 mOhms Max
- **Thermal Aging**
  - <= +5.0 mOhms ----- 8 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

**Ground Pin:**

- **Initial** ----- 5.54 mOhms Max
- **Thermal Aging**
  - <= +5.0 mOhms ----- 8 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 (16 pin LLCR test points, include 8 signal and 8 ground points)**

**Signal Pin:**

- **Initial** ----- 14.00 mOhms Max
- **Gas-Tight**
  - <= +5.0 mOhms ----- 8 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

**Ground Pin:**

- **Initial** ----- 2.79 mOhms Max
- **Gas-Tight**
  - <= +5.0 mOhms ----- 8 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 Shock & Vib (16 pin LLCR test points, include 8 signal and 8 ground points)**

**Signal Pin:**

- **Initial** ----- 31.16 mOhms Max
- **S&V**
  - <= +5.0 mOhms ----- 8 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

**Ground Pin:**

- **Initial** ----- 5.22 mOhms Max
- **S&V**
  - <= +5.0 mOhms ----- 8 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

**Note: The cable length used in shock&vib is longer than with other sequences and this contributes to the LLCR variance.**

**Mechanical Shock & Random Vibration:**

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

**RESULTS Continued**

**Insulation Resistance minimums, IR**  
**RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3**

**Pin-Ground**

- **Initial**
  - Mated-----10000 Meg  $\Omega$  ----- Pass
  - Unmated -----10000 Meg  $\Omega$  ----- Pass
- **Thermal**
  - Mated-----10000 Meg  $\Omega$  ----- Pass
  - Unmated -----10000 Meg  $\Omega$  ----- Pass
- **Humidity**
  - Mated-----10000 Meg  $\Omega$  ----- Pass
  - Unmated -----10000 Meg  $\Omega$  ----- Pass

**Dielectric Withstanding Voltage minimums, DWV**

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

**Pin - Ground**

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

**RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3**

**Pin-Ground**

- **Initial**
  - Mated-----10000 Meg  $\Omega$  ----- Pass
  - Unmated -----10000 Meg  $\Omega$  ----- Pass
- **Thermal**
  - Mated-----10000 Meg  $\Omega$  ----- Pass
  - Unmated -----10000 Meg  $\Omega$  ----- Pass
- **Humidity**
  - Mated----- 6300 Meg  $\Omega$  ----- Pass
  - Unmated ----- 5800 Meg  $\Omega$  ----- Pass

**Dielectric Withstanding Voltage minimums, DWV**

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

**Pin - Ground**

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

**DATA SUMMARIES Continued**

**MATING/UNMATING FORCE:**

**Mating/Unmating durability (RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3):**

	Initial				After 25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	14.14	3.18	12.32	2.77	13.57	3.05	12.23	2.75
Maximum	20.10	4.52	16.86	3.79	18.15	4.08	15.57	3.50
<b>Average</b>	16.16	<b>3.63</b>	14.29	<b>3.21</b>	14.85	<b>3.34</b>	13.68	<b>3.08</b>
St Dev	2.00	0.45	1.60	0.36	1.55	0.35	1.33	0.30
Count	8	8	8	8	8	8	8	8
	After 50 Cycles				After 75 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	12.63	2.84	12.01	2.70	12.45	2.80	11.83	2.66
Maximum	15.43	3.47	14.68	3.30	14.68	3.30	14.23	3.20
<b>Average</b>	13.89	<b>3.12</b>	13.19	<b>2.97</b>	13.57	<b>3.05</b>	12.94	<b>2.91</b>
St Dev	1.08	0.24	1.23	0.28	0.92	0.21	1.10	0.25
Count	8	8	8	8	8	8	8	8
	After 100 Cycles				After Humidity			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	11.83	2.66	11.12	2.50	11.39	2.56	10.94	2.46
Maximum	14.46	3.25	13.83	3.11	14.32	3.22	13.26	2.98
<b>Average</b>	13.24	<b>2.98</b>	12.58	<b>2.83</b>	12.76	<b>2.87</b>	11.89	<b>2.67</b>
St Dev	1.16	0.26	1.16	0.26	1.05	0.24	0.94	0.21
Count	8	8	8	8	8	8	8	8

**Unmating forces - Unmating RNG from Body**

	Force (lbs)
Minimum	<b>1.54</b>
Maximum	2.49
Average	1.91

**DATA SUMMARIES Continued**

**Thermal aging (RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3):**

	Initial				After Thermals			
	Mating		Unmating		Mating		Unmating	
	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)	Newton	Force (Lbs)
Minimum	13.34	3.00	9.43	2.12	9.52	2.14	10.72	2.41
Maximum	18.73	4.21	14.14	3.18	17.12	3.85	13.57	3.05
<b>Average</b>	15.68	<b>3.53</b>	12.22	<b>2.75</b>	14.60	<b>3.28</b>	11.74	<b>2.64</b>
St Dev	1.72	0.39	1.58	0.36	2.35	0.53	0.96	0.22
Count	8	8	8	8	8	8	8	8

**Connector pulls force:**

**SMP-J-C-G-ST-CA7 -SKT (Terminated with cable)**

	Force (lbs)
Minimum	<b>22.58</b>
Maximum	25.64
Average	24.28

**SMP-J-C-G-ST-CA7 -SKT (Terminated with cable) & SUB-SMP-J-C-GF-ST-CA7**

	Force (lbs)
Minimum	<b>2.78</b>
Maximum	3.53
Average	3.17

**RF405-00SJ7-00SJ7-0305**

	Force (lbs)
Minimum	<b>33.17</b>
Maximum	44.66
Average	38.00

**RF405-00RJ7-00RJ7-0305**

	Force (lbs)
Minimum	<b>39.21</b>
Maximum	42.36
Average	41.23

**DATA SUMMARIES Continued****NORMAL FORCE:****Center pin:**

Initial	Deflections in mm Forces in Grams				<i>SET</i>
	<b>0.0200</b>	<b>0.0400</b>	<b>0.0600</b>	<b>0.0700</b>	
<b>Averages</b>	26.33	52.11	77.83	90.43	0.0023
<b>Min</b>	21.90	47.10	70.00	79.50	0.0000
<b>Max</b>	34.00	68.00	97.80	113.20	0.0070
<b>St. Dev</b>	3.873	6.794	8.833	9.699	0.0023
<b>Count</b>	12	12	12	12	12

After Thermals	Deflections in mm Forces in Grams				<i>SET</i>
	<b>0.0200</b>	<b>0.0400</b>	<b>0.0600</b>	<b>0.0700</b>	
<b>Averages</b>	26.99	54.72	82.41	97.21	0.0011
<b>Min</b>	20.50	48.40	71.30	85.39	0.0000
<b>Max</b>	31.10	61.80	94.20	113.95	0.0050
<b>St. Dev</b>	3.336	4.476	7.675	9.329	0.0016
<b>Count</b>	12	12	12	12	12

**Outer pin:**

Initial	Deflections in mm Forces in Grams				<i>SET</i>	
	<b>0.0500</b>	<b>0.1000</b>	<b>0.1500</b>	<b>0.2000</b>		<b>0.2300</b>
<b>Averages</b>	68.01	135.05	202.23	272.58	311.92	0.0023
<b>Min</b>	61.30	126.70	189.30	258.70	299.85	0.0000
<b>Max</b>	77.60	151.20	219.30	290.10	330.58	0.0080
<b>St. Dev</b>	5.303	7.764	10.043	10.143	11.146	0.0031
<b>Count</b>	12	12	12	12	12	12

After Thermals	Deflections in mm Forces in Grams				<i>SET</i>	
	<b>0.0500</b>	<b>0.1000</b>	<b>0.1500</b>	<b>0.2000</b>		<b>0.2300</b>
<b>Averages</b>	72.30	143.90	218.69	295.51	339.02	0.0000
<b>Min</b>	64.00	133.50	201.60	272.40	317.60	0.0000
<b>Max</b>	81.70	160.70	241.00	322.70	369.32	0.0000
<b>St. Dev</b>	5.001	9.027	13.228	15.599	17.708	0.0000
<b>Count</b>	12	12	12	12	12	12

**DATA SUMMARIES Continued****INSULATION RESISTANCE (IR):****RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3**

	Pin to Ground		
	Mated	Unmated	Unmated
Minimum	<b>RJ7/SMP</b>	<b>RJ7</b>	<b>SMP</b>
<b>Initial</b>	10000	10000	10000
<b>Thermal</b>	10000	10000	10000
<b>Humidity</b>	10000	10000	10000

**RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3**

	Pin to Ground		
	Mated	Unmated	Unmated
Minimum	<b>SJ7/SMP</b>	<b>SJ7</b>	<b>SMP</b>
<b>Initial</b>	10000	10000	10000
<b>Thermal</b>	10000	10000	10000
<b>Humidity</b>	6300	10000	5800

**DIELECTRIC WITHSTANDING VOLTAGE (DWV):****RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3**

Voltage Rating Summary	
Minimum	<b>RJ7/SMP</b>
<b>Break Down Voltage</b>	800
<b>Test Voltage</b>	600
<b>Working Voltage</b>	200

**RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3**

Voltage Rating Summary	
Minimum	<b>SJ7/SMP</b>
<b>Break Down Voltage</b>	800
<b>Test Voltage</b>	600
<b>Working Voltage</b>	200

**DATA SUMMARIES**

**LLCR Durability:**

- 1) A total of 16 include 8 signal and 8 ground 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

<b>LLCR Measurement Summaries by Pin Type</b>				
Date	10/19/2011	10/20/2011	10/20/2011	11/6/2011
Room Temp (Deg C)	23	23	23	24
Rel Humidity (%)	45	45	45	50
Technician	Peter Chen	Peter Chen	Peter Chen	Peter Chen
<b>mOhm values</b>	<b>Actual Initial</b>	<b>Delta 100 Cycles</b>	<b>Delta Thermal</b>	<b>Delta Humidity</b>
<b>Pin Type 1: Ground</b>				
Average	3.63	0.91	0.97	0.95
St. Dev.	0.76	0.92	1.21	1.12
Min	2.84	-0.95	-0.55	-0.16
Max	4.76	2.31	3.04	2.75
Summary Count	8	8	8	8
Total Count	8	8	8	8
<b>Pin Type 2: Signal</b>				
Average	15.78	0.18	1.03	1.61
St. Dev.	1.20	0.38	0.62	1.22
Min	14.41	-0.57	0.47	0.22
Max	17.54	0.71	2.42	3.88
Summary Count	8	8	8	8
Total Count	8	8	8	8

<b>LLCR Delta Count by Category</b>						
mOhms	Stable	Minor	Acceptable	Marginal	Unstable	Open
	$\leq 5$	$>5$ & $\leq 10$	$>10$ & $\leq 15$	$>15$ & $\leq 50$	$>50$ & $\leq 1000$	$>1000$
<b>100 Cycles</b>	16	0	0	0	0	0
<b>Therm Shck</b>	16	0	0	0	0	0
<b>Humidity</b>	16	0	0	0	0	0

**DATA SUMMARIES**

**LLCR thermal aging**

- 1) A total of 16 include 8 signal and 8 ground 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
  - g.

<b>LLCR Measurement Summaries by Pin Type</b>		
	10/19/2011	10/31/2012
Date	10/19/2011	10/31/2012
Room Temp (Deg C)	23	23
Rel Humidity (%)	45	56
Technician	Peter Chen	
<b>mOhm values</b>	<b>Actual</b>	<b>Delta</b>
	<b>Initial</b>	<b>After Thermla</b>
<b>Pin Type 1: Ground</b>		
Average	3.68	0.73
St. Dev.	0.77	1.11
Min	3.14	-1.03
Max	5.54	2.16
Summary Count	8	8
Total Count	8	8
<b>Pin Type 2: Signal</b>		
Average	16.13	0.75
St. Dev.	0.98	0.50
Min	14.57	0.18
Max	17.29	1.91
Summary Count	8	8
Total Count	8	8

<b>LLCR Delta Count by Category</b>						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	$\leq 5$	$>5$ & $\leq 10$	$>10$ & $\leq 15$	$>15$ & $\leq 50$	$>50$ & $\leq 1000$	$>1000$
<b>Thermal</b>	16	0	0	0	0	0

**DATA SUMMARIES**

**LLCR GAS TIGHT:**

- 1) A total of 16 include 8 signal and 8 ground 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

<b>LLCR Measurement Summaries by Pin Type</b>		
	10/31/2011	11/4/2011
Date	10/31/2011	11/4/2011
Room Temp (Deg C)	23	23
Rel Humidity (%)	50	51
Technician	Peter Chen	Peter Chen
<b>mOhm values</b>	<b>Actual</b>	<b>Delta</b>
	<b>Initial</b>	<b>After Acid Vapor</b>
<b>Pin Type 1: Ground</b>		
Average	2.47	0.37
St. Dev.	0.17	0.17
Min	2.26	0.17
Max	2.77	0.67
Summary Count	8	8
Total Count	8	8
<b>Pin Type 2: Signal</b>		
Average	12.79	0.26
St. Dev.	0.86	0.21
Min	11.78	-0.10
Max	14.00	0.55
Summary Count	8	8
Total Count	8	8

<b>LLCR Delta Count by Category</b>						
mOhms	Stable	Minor	Acceptable	Marginal	Unstable	Open
	$\leq 5$	$>5$ & $\leq 10$	$>10$ & $\leq 15$	$>15$ & $\leq 50$	$>50$ & $\leq 1000$	$>1000$
<b>Acid Vapor</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**DATA SUMMARIES**

**LLCR S&V:**

- 1) A total of 16 include 8 signal and 8 ground 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

<b>LLCR Measurement Summaries by Pin Type</b>		
	11/17/2011	12/1/2011
Date	11/17/2011	12/1/2011
Room Temp (Deg C)	23	23
Rel Humidity (%)	27	28
Technician	Craig Ryan	Craig Ryan
<b>mOhm values</b>	<b>Actual</b>	<b>Delta</b>
	<b>Initial</b>	<b>Shock-Vib</b>
<b>Pin Type 1: Ground</b>		
Average	4.99	0.45
St. Dev.	0.15	0.3
Min	4.76	0.03
Max	5.22	0.9
Summary Count	8	8
Total Count	8	8
<b>Pin Type 2: Signal</b>		
Average	30.56	0.17
St. Dev.	0.34	0.28
Min	30.13	0.00
Max	31.16	0.88
Summary Count	8	8
Total Count	8	8

<b>LLCR Delta Count by Category</b>						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	$\leq 5$	$>5 \ \& \ \leq 10$	$>10 \ \& \ \leq 15$	$>15 \ \& \ \leq 50$	$>50 \ \& \ \leq 1000$	$>1000$
<b>Shock-Vib</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Shock and Vibration Event Detection Summary:**

<b>Shock and Vibration Event Detection Summary</b>	
Contacts tested	8
Test Condition	G, 100g's, 6ms, SawTooth
Shock Events	0
Test Condition	V-F, 20.71 rms g, 1.5hrs
Vibration Events	0
<b>Total Events</b>	<b>0</b>

**EQUIPMENT AND CALIBRATION SCHEDULES****Equipment #:** HZ-TCT-01**Description:** Normal force analyzer**Manufacturer:** Mecmesin Multitester**Model:** Mecmesin Multitester 2.5-i**Serial #:** 08-1049-04**Accuracy:** Last Cal: 2012-4-28, Next Cal: 2013-4-27**Equipment #:** HZ-OV-01**Description:** Oven**Manufacturer:** Huida**Model:** CS101-1E**Serial #:** CS101-1E-B**Accuracy:** Last Cal: 2011-12-14, Next Cal: 2012-12-13**Equipment #:** HZ-THC-01**Description:** Humidity transmitter**Manufacturer:** Thermtron**Model:** HMM30C**Serial #:** D0240037**Accuracy:** Last Cal: 2012-3-3, Next Cal: 2013-3-2**Equipment #:** HZ-TSC-01**Description:** Thermal Shock transmitter**Manufacturer:** CSZ**Model:** 10-VT14994**Serial #:** VTS-3-6-6-SC/AC**Accuracy:** Last Cal: 2011-11-1, Next Cal: 2012-11-1**Equipment #:** HZ-MO-03**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 580**Serial #:** 297288**Accuracy:** Last Cal: 2011-8-06, Next Cal: 2012-8-05**Equipment #:** HZ-OGP-01**Description:** Video measurement system**Manufacturer:** OGP**Model:** SMARTSCOPE FLASH 200**Serial #:** SVW2003632**Accuracy:** Last Cal: 2012-6-10, Next Cal: 2013-6-9

Tracking Code: 164939_Report_Rev_3	Part #: RF405-00SJ7-00SJ7-0305/SMP-PF-P-HH-ST-EM3 RF405-00RJ7-00RJ7-0305/SMP-PF-P-HH-ST-EM3
Part description: RF405\SMP	

**EQUIPMENT AND CALIBRATION SCHEDULES**

**Equipment #:** HZ-HPM-01  
**Description:** IR\_DWV Tester  
**Manufacturer:** Keithley  
**Model:** AN9636H  
**Serial #:** 089601091  
**Accuracy:** Last Cal: 2012-3-4, Next Cal: 2013-3-4

**Equipment #:** HZ-MO-01  
**Description:** Micro-ohmmeter  
**Manufacturer:** Keithley  
**Model:** 2700  
**Serial #:** 1199807  
**Accuracy:** Last Cal: 2012-4-28, Next Cal: 2013-4-27

**Equipment #:** SVC-01  
**Description:** Shock & Vibration Table  
**Manufacturer:** Data Physics  
**Model:** LE-DSA-10-20K  
**Serial #:** 10037  
**Accuracy:** See Manual  
... Last Cal: 2011-11-31, Next Cal: 2012-11-31

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

**Equipment #:** ED-03  
**Description:** Event Detector  
**Manufacturer:** Analysis Tech  
**Model:** 32EHD  
**Serial #:** 1100604  
**Accuracy:** See Manual  
... Last Cal: 2012-06-4, Next Cal: 2013-06-4