Project Number: ACX 10u" Gold ELP Report	Tracking Code: 207757_Test Report_Rev 1			
Requested by: James Borgelt	Date: 11/29/2012	Product Rev: D		
Part #: ACP-16-01-G-00.35-T-BC-P-1/ACR-16-01-G-00.35-S-BC-P-1 ACP-16-02-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1 ACP-16-03-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1	Lot #: N/A	Tech: Aaron McKim	Eng: Eric Mings	
Part description: Acclimate Circular Cable Assembly			Qty to test: 20	
Test Start: 7/18/2012	Test Completed: 8/17/2012			

ACX 10u" GOLD EXTENDED DURABILITY TEST REPORT

ACP-16-01-G-00.35-T-BC-P-1/ACR-16-01-G-00.35-S-BC-P-1
ACP-16-02-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1
ACP-16-03-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
11/28/2012	**1**	**Initial Issue**	**CE**

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to IS0 10012-l and ANSI/NCSL 2540-1, as applicable.

SCOPE

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

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) After soldering, the parts to be used for LLCR 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 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) Samtec Test PCBs used: PCB-103219-TST-XX

FLOWCHARTS

Extended Life

TEST STEP	GROUP A1 4 Assemblies 100 Cycles	GROUP B1 4 Assemblies 250 Cycles	GROUP C1 4 Assemblies 500 Cycles
01	* Plating Thickness Verification	* Plating Thickness Verification	* Plating Thickness Verification
02	LLCR-1	LLCR-1	LLCR-1
03	100 Cycles	250 Cycles	500 Cycles
04	Clean Mating Interface	Clean Mating Interface	Clean Mating Interface
05	LLCR-2	LLCR-2	LLCR-2
06	Thermal Shock (Mated and undisturbed)	Thermal Shock (Mated and undisturbed)	Thermal Shock (Mated and undisturbed)
07	LLCR-3	LLCR-3	LLCR-3
08	Cyclic Humidity (Mated and undisturbed)	Cyclic Humidity (Mated and undisturbed)	Cyclic Humidity (Mated and undisturbed)
09	LLCR-4	LLCR-4	LLCR-4
10	*** Photos of Contact Area	*** Photos of Contact Area	*** Photos of Contact Area

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

LLCR = EIA-364-23, LLCR

20 mV Max, 100 mA Max

Use Keithley 580 or 3706 in 4 wire dry circuit mode

*** Measure, verify, and document plating thickness on both male and female (one group only)**

**** Plating thickness to be measured on loose pins used during assembly. Pins to be provided by requestor.**

***** Save 2-3 photos of contact area in project folder for each group**

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℃ to +85℃
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.

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.

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.

LLCR:

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

RESULTS

ACP-16-01-G-00.35-T-BC-P-1/ACR-16-01-G-00.35-S-BC-P-1

LLCR Extended Life 100 cycles: (4 Assemblies)

ACP-16-01

- **Initial ---------- 140.75 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ---------- 54 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 50 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 5 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 48 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 6 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 2 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 Extended Life 250 cycles: (4 Assemblies)

ACP-16-01

- **Initial ---------- 138.03mOhms Max**
- **Durability, 250 Cycles**
  - **<= +5.0 mOhms ---------- 56 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 52 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 56 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 Extended Life 500 cycles: (4 Assemblies)

ACP-16-01

- **Initial ---------- 138.14mOhms Max**
- **Durability, 500 Cycles**
  - **<= +5.0 mOhms ---------- 56 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 53 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Humidity**
  - **<= +5.0 mOhms ---------- 50 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 6 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**

ACP-16-02-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1

LLCR Extended Life 100 cycles: (4 Assemblies)

ACP-16-02

- **Initial ---------- 53.61 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ---------- 40 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 40 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 40 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 Extended Life 250 cycles: (4 Assemblies)

ACP-16-02

- **Initial ---------- 54.09 mOhms Max**
- **Durability, 250 Cycles**
  - **<= +5.0 mOhms ---------- 40 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 40 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 40 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 Extended Life 500 cycles: (4 Assemblies)

ACP-16-02

- **Initial ---------- 53.78 mOhms Max**
- **Durability, 500 Cycles**
  - **<= +5.0 mOhms ---------- 40 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 40 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 40 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

ACP-16-03-G-00.35-T-BC-P-1/ACR-16-03-G-00.35-S-BC-P-1

LLCR Extended Life 100 cycles: (4 Assemblies)

ACP-16-03

- **Initial ---------- 10.15 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ----------16 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ----------16 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**
- **Humidity**
  - **<= +5.0 mOhms ----------16 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 Extended Life 250 cycles: (4 Assemblies)

ACP-16-03

- **Initial ---------- 10.33mOhms Max**
- **Durability, 250 Cycles**
  - **<= +5.0 mOhms ----------16 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ----------16 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**
- **Humidity**
  - **<= +5.0 mOhms ----------16 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 Extended Life 500 cycles: (4 Assemblies)

ACP-16-03

- **Initial ---------- 10.10 mOhms Max**
- **Durability, 500 Cycles**
  - **<= +5.0 mOhms ----------16 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ----------16 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**
- **Humidity**
  - **<= +5.0 mOhms ----------15 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------1 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**

DATA SUMMARIES

ACP-16-01-G-00.35-T-BC-P-1/ACR-16-01-G-00.35-S-BC-P-1

LLCR Extended Life 100 cycles:

1) A total of 56 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

LLCR Results for Test: Extended Life 100 Cycles
Series: ACP-16-01-G-P/ACR-16-01-G-P

LLCR Measurement Summaries by Pin Type				
Date	7/18/2012	7/24/2012	7/30/2012	8/16/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	45	49	43	40
Technician	Aaron McKim	Aaron McKim	Troy Cook	Aaron McKim
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	136.81	0.92	1.97	2.34
St. Dev.	1.49	1.48	2.49	2.79
Min	133.97	0.08	0.03	0.00
Max	140.75	8.30	11.70	11.92
Summary Count	56	56	56	56
Total Count	56	56	56	56

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**54**	**2**	**0**	**0**	**0**	**0**
Therm Shck	**50**	**5**	**1**	**0**	**0**	**0**
Humidity	**48**	**6**	**2**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-01-G-00.35-T-BC-P-1/ACR-16-01-G-00.35-S-BC-P-1

LLCR Extended Life 250 cycles:

1) A total of 56 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms:---------- Stable
   b. +5.1 to +10.0 mOhms:---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms:---------- Open Failure

LLCR Results for Test: Extended Life 250 Cycles			
Series: ACP-16-01-G-P/ACR-16-01-G-P			

LLCR Measurement Summaries by Pin Type				
Date	7/18/2012	7/24/2012	7/30/2012	8/16/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	44	49	43	42
Technician	Aaron McKim	Aaron McKim	Troy Cook	Aaron McKim
mOhm values	**Actual Initial**	**Delta 250 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	134.79	0.34	0.96	0.66
St. Dev.	1.19	0.75	1.73	0.66
Min	132.63	0.00	0.03	0.01
Max	138.03	4.80	8.02	2.93
Summary Count	56	56	56	56
Total Count	56	56	56	56

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
250 Cycles	**56**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**52**	**4**	**0**	**0**	**0**	**0**
Humidity	**56**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-01-G-00.35-T-BC-P-1/ACR-16-01-G-00.35-S-BC-P-1

LLCR Extended Life 500 cycles:

1) A total of 56 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms:---------- Stable
   b. +5.1 to +10.0 mOhms:---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms:---------- Open Failure

LLCR Results for Test: Extended Life 500 Cycles			
Series: ACP-16-01-G-P/ACR-16-01-G-P			

LLCR Measurement Summaries by Pin Type				
Date	7/18/2012	7/24/2012	7/30/2012	8/16/2012
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	44	49	43	41
Technician	Aaron McKim	Aaron McKim	Troy Cook	Aaron McKim
mOhm values	**Actual Initial**	**Delta 500 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	135.87	0.34	1.16	1.73
St. Dev.	1.13	0.32	1.59	2.27
Min	133.69	0.01	0.04	0.00
Max	138.14	1.85	8.57	9.48
Summary Count	56	56	56	56
Total Count	56	56	56	56

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
500 Cycles	**56**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**53**	**3**	**0**	**0**	**0**	**0**
Humidity	**50**	**6**	**0**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-02-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1

LLCR Extended Life 100 cycles:

1) A total of 40 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

LLCR Results for Test: Extended Life 100 cycles			
Series:	ACP/ACR-16-02		

LLCR Measurement Summaries by Pin Type				
Date	7/25/2012	7/31/2012	8/8/2012	8/21/2012
Room Temp (Deg C)	22	22	22	23
Rel Humidity (%)	51	46	38	36
Technician	Troy Cook	Troy Cook	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	52.76	0.06	0.20	0.72
St. Dev.	0.42	0.06	0.14	0.97
Min	51.92	0.00	0.00	0.01
Max	53.61	0.25	0.64	4.91
Summary Count	40	40	40	40
Total Count	40	40	40	40

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**40**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**40**	**0**	**0**	**0**	**0**	**0**
Humidity	**40**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-02-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1

LLCR Extended Life 250 cycles:

1) A total of 40 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

LLCR Results for Test: Extended Life 250 Cycles			
Series: ACP/ACR-16-02			
LLCR Measurement Summaries by Pin Type			
Date	7/25/2012	8/8/2012	8/14/2012	8/27/2012
Room Temp (Deg C)	22	22	21	22
Rel Humidity (%)	51	38	41	44
Technician	Troy Cook	Troy Cook	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 250 Cycles**	**Delta Therm Shck**	**Delta Humidity**
Pin Type 1: Signal				
Average	52.83	0.12	0.20	0.24
St. Dev.	0.47	0.07	0.11	0.25
Min	51.92	0.01	0.01	0.00
Max	54.09	0.31	0.41	1.08
Summary Count	40	40	40	40
Total Count	40	40	40	40

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
250 Cycles	**40**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**40**	**0**	**0**	**0**	**0**	**0**
Humidity	**40**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-02-G-00.35-T-BC-P-1/ACR-16-02-G-00.35-S-BC-P-1

LLCR Extended Life 500 cycles:

1) A total of 40 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

LLCR Results for Test: Extended Life 500 Cycles			
Series:	ACP/ACR-16-02		

LLCR Measurement Summaries by Pin Type				
Date	7/25/2012	8/9/2012	8/14/2012	8/27/2012
Room Temp (Deg C)	22	22	21	22
Rel Humidity (%)	51	42	41	44
Technician	Troy Cook	Troy Cook	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 500 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	52.73	0.11	0.21	0.27
St. Dev.	0.47	0.05	0.08	0.31
Min	51.83	0.00	0.01	0.00
Max	53.78	0.21	0.33	2.11
Summary Count	40	40	40	40
Total Count	40	40	40	40

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
500 Cycles	**40**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**40**	**0**	**0**	**0**	**0**	**0**
Humidity	**40**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-03-G-00.35-T-BC-P-1/ACR-16-03-G-00.35-S-BC-P-1

LLCR Extended Life 100 cycles:

1) A total of 16 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

LLCR Results for Test: Extended Life 100 Cycles			
Series:	ACP/ACR-16-03		

LLCR Measurement Summaries by Pin Type				
Date	8/1/2012	8/2/2012	8/8/2012	8/21/2012
Room Temp (Deg C)	22	22	22	23
Rel Humidity (%)	44	40	38	36
Technician	Troy Cook	Troy Cook	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	9.57	0.08	0.14	0.30
St. Dev.	0.27	0.04	0.20	0.42
Min	9.30	0.01	0.00	0.01
Max	10.15	0.21	0.72	1.38
Summary Count	16	16	16	16
Total Count	16	16	16	16

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**16**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**16**	**0**	**0**	**0**	**0**	**0**
Humidity	**16**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-03-G-00.35-T-BC-P-1/ACR-16-03-G-00.35-S-BC-P-1

LLCR Extended Life 250 cycles:

1) A total of 16 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

LLCR Results for Test: Extended Life 250 Cycles			
Series: ACP/ACR-16-03			
LLCR Measurement Summaries by Pin Type			
Date	8/1/2012	8/2/2012	8/8/2012	8/21/2012
Room Temp (Deg C)	22	22	23	23
Rel Humidity (%)	45	42	38	36
Technician	Troy Cook	Troy Cook	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 250 Cycles**	**Delta Therm Shck**	**Delta Humidity**
Pin Type 1: Signal				
Average	9.58	0.09	0.10	0.32
St. Dev.	0.29	0.13	0.13	0.51
Min	9.27	0.01	0.00	0.00
Max	10.33	0.49	0.53	2.22
Summary Count	16	16	16	16
Total Count	16	16	16	16

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
250 Cycles	**16**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**16**	**0**	**0**	**0**	**0**	**0**
Humidity	**16**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES CONTINUED

ACP-16-03-G-00.35-T-BC-P-1/ACR-16-03-G-00.35-S-BC-P-1

LLCR Extended Life 500 cycles:

1) A total of 16 points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms:---------- Stable
   b. +5.1 to +10.0 mOhms:---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms:---------- Open Failure

LLCR Results for Test: Extended Life 500 Cycles	
Series:	ACP/ACR-16-03

LLCR Measurement Summaries by Pin Type				
Date	8/1/2012	8/3/2012	8/8/2012	8/21/2012
Room Temp (Deg C)	22	22	23	23
Rel Humidity (%)	45	47	37	36
Technician	Troy Cook	Troy Cook	Troy Cook	Troy Cook
mOhm values	**Actual Initial**	**Delta 500 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	9.54	0.04	0.12	0.61
St. Dev.	0.25	0.04	0.20	1.20
Min	9.31	0.00	0.00	0.01
Max	10.10	0.18	0.84	5.09
Summary Count	16	16	16	16
Total Count	16	16	16	16

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
500 Cycles	**16**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**16**	**0**	**0**	**0**	**0**	**0**
Humidity	**15**	**1**	**0**	**0**	**0**	**0**

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 03/27/2012, Next Cal: 03/27/2013

Equipment #: MO-11
Description: System Switch Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 3706
Serial #:
Accuracy: See Manual
… Last Cal: 09/24/2012, Next Cal: 09/30/2013

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SE-1000-6-6
Serial #: 31808
Accuracy: See Manual
… Last Cal: 09/18/2012, Next Cal: 09/18/2013

Equipment #: TSC-01
Description: Vertical Thermal Shock Chamber
Manufacturer: Cincinnatti Sub Zero
Model: VTS-3-6-6-SC/AC
Serial #: 10-VT14993
Accuracy: See Manual
… Last Cal: 05/13/2012, Next Cal: 05/13/2013

Equipment #: TCT-04
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 04-1041-04
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 05/03/2012, Next Cal: 05/03/2013

EQUIPMENT AND CALIBRATION SCHEDULES CONTINUED

Equipment #: TCT-07
Description: Chatillon
Manufacturer: Chatillon
Model: LF Plus
Serial #: LF1310
Accuracy: See Manual
… Last Cal: 07/13/2012, Next Cal: 07/13/2013

Equipment #: TCT-05
Description: Chatillon TCD Series
Manufacturer: Chatillon
Model: TCD2255
Serial #: TCD0071
Accuracy: See Manual
… Last Cal: 11/01/2012, Next Cal: 11/01/2013