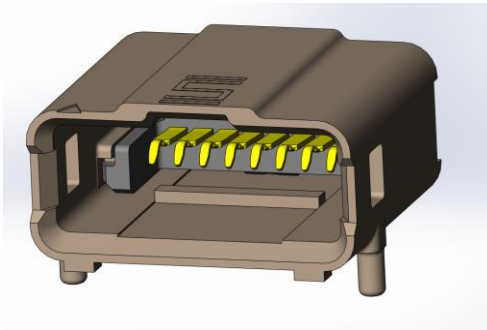


Project Number: Design Qualification Test Report	Tracking Code: CR-868802_Report_Rev_2
Requested by: Will Luo	Date: 10/16/2024
Part #: ARM6-02-06.0-LU-XX-X-1/AMF6-02-S-RA-XR	
Part description: ARM6/AMF6-RA	Tech: Peter Chen
Test Start: 1/5/2023	Test Completed: 2/25/2023



DESIGN QUALIFICATION TEST REPORT
ARM6/AMF6-RA
ARM6-02-06.0-LU-XX-X-1/AMF6-02-S-RA-XR

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
3/27/2023	1	Initial test	PC
9/12/2023	1	Remove the MFG data	PC

CERTIFICATION

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

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SCOPE

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

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to CO-SC-WI-3029.
- 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) Samtec Test PCBs used: PCB-112497-TST/PCB-112499-TST.

FLOWCHARTS**Gas Tight****Group 1**

ARM6-02-06.0-LU-XX-X-1

AMF6-02-S-RA-XR

8 Assemblies

Step Description

1. LLCR ⁽²⁾
2. Gas Tight ⁽¹⁾
3. LLCR ⁽²⁾
Max Delta = 15 mOhm

 (1) Gas Tight = EIA-364-36

(2) LLCR = EIA-364-23

Open Circuit Voltage = 20 mV Max

Test Current = 100 mA Max

Normal Force**Group 1**

AMF6-02-S-RA-XR

8 Contacts Minimum
Signal Without Thermals**Step Description**

1. Contact Gaps
2. Normal Force ⁽¹⁾
Deflection = 0.01 "
Expected Force at Max Deflection = 50 g

Group 2

AMF6-02-S-RA-XR

ARM6-02-06.0-LU-XX-X-1

8 Contacts Minimum
Signal With Thermals**Step Description**

1. Contact Gaps
2. Thermal Age ⁽²⁾
3. Contact Gaps
4. Normal Force ⁽¹⁾
Deflection = 0.01 "
Expected Force at Max Deflection = 50 g

 (1) Normal Force = EIA-364-04

(2) Thermal Age = EIA-364-17

Test Condition = 4 (105°C)

Time Condition = B (250 Hours)

FLOWCHARTS Continued**Thermal Aging**Group 1

ARM6-02-06.0-LU-XX-X-1

AMF6-02-S-RA-XR

8 Assemblies

Step	Description
1.	Contact Gaps
2.	Mating/Unmating Force ⁽²⁾
3.	LLCR ⁽¹⁾
4.	Thermal Age ⁽³⁾
5.	LLCR ⁽¹⁾ Max Delta = 15 mOhm
6.	Mating/Unmating Force ⁽²⁾
7.	Contact Gaps

(1) LLCR = EIA-364-23

Open Circuit Voltage = 20 mV Max

Test Current = 100 mA Max

(2) Mating/Unmating Force = EIA-364-13

(3) Thermal Age = EIA-364-17

Test Condition = 4 (105°C)

Time Condition = B (250 Hours)

FLOWCHARTS Continued**Mating/Unmating/Durability****Largest Pin Count****Group 1**

ARM6-02-06.0-LU-XX-X-1

AMF6-02-S-RA-XR

8 Assemblies

Step	Description
1.	Contact Gaps
2.	LLCR ⁽²⁾
3.	Mating/Unmating Force ⁽³⁾
4.	Cycles Quantity = 25 Cycles
5.	Mating/Unmating Force ⁽³⁾
6.	Contact Gaps
7.	LLCR ⁽²⁾ Max Delta = 15 mOhm
8.	Thermal Shock ⁽⁴⁾ - Non Standard
9.	LLCR ⁽²⁾ Max Delta = 15 mOhm
10.	Humidity ⁽¹⁾
11.	LLCR ⁽²⁾ Max Delta = 15 mOhm
12.	Mating/Unmating Force ⁽³⁾

Smallest Pin Count**Group 2**

ARM6-01-06.0-LU-XX-X-1

AMF6-01-S-RA-XR

8 Assemblies

Step	Description
1.	Contact Gaps
2.	Mating/Unmating Force ⁽³⁾
3.	Cycles Quantity = 25 Cycles
4.	Mating/Unmating Force ⁽³⁾

(1) Humidity = EIA-364-31

Test Condition = B (240 Hours)

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

Test Exceptions: ambient pre-condition and delete steps 7a and 7b

(2) LLCR = EIA-364-23

Open Circuit Voltage = 20 mV Max

Test Current = 100 mA Max

(3) Mating/Unmating Force = EIA-364-13

(4) Thermal Shock = Other

Exposure Time at Temperature Extremes = 1/2 Hour

Method A, Test Condition = I (-40°C to +85°C)

Test Duration = A-3 (100 Cycles)

EIA-364-32, change Thermal Shock profile from -55°C/85°C to -40°C/85°C, due to temp limit of cable.

FLOWCHARTS Continued

IR/DWV

Pin-to-Pin

<u>Group 1</u>	<u>Group 2</u>	<u>Group 3</u>	<u>Group 4</u>
ARM6-02-06.0-LU-XX-X-1 AMF6-02-S-RA-XR 2 Assemblies	ARM6-02-06.0-LU-XX-X-1 2 Assemblies	AMF6-02-S-RA-XR 2 Assemblies	ARM6-02-06.0-LU-XX-X-1 AMF6-02-S-RA-XR 2 Assemblies
Step Description	Step Description	Step Description	Step Description
1. DWV Breakdown ⁽²⁾	1. DWV Breakdown ⁽²⁾	1. DWV Breakdown ⁽²⁾	1. IR ⁽⁴⁾ 2. DWV at Test Voltage ⁽¹⁾ 3. Thermal Shock ⁽⁵⁾ - Non Standard 4. IR ⁽⁴⁾ 5. DWV at Test Voltage ⁽¹⁾ 6. Humidity ⁽³⁾ 7. IR ⁽⁴⁾ 8. DWV at Test Voltage ⁽¹⁾

Pin-to-Ground

<u>Group 5</u>	<u>Group 6</u>	<u>Group 7</u>	<u>Group 8</u>
ARM6-02-06.0-LU-XX-X-1 AMF6-02-S-RA-XR 2 Assemblies	ARM6-02-06.0-LU-XX-X-1 2 Assemblies	AMF6-02-S-RA-XR 2 Assemblies	ARM6-02-06.0-LU-XX-X-1 AMF6-02-S-RA-XR 2 Assemblies
Step Description	Step Description	Step Description	Step Description
1. DWV Breakdown ⁽²⁾	1. DWV Breakdown ⁽²⁾	1. DWV Breakdown ⁽²⁾	1. IR ⁽⁴⁾ 2. DWV at Test Voltage ⁽¹⁾ 3. Thermal Shock ⁽⁵⁾ - Non Standard 4. IR ⁽⁴⁾ 5. DWV at Test Voltage ⁽¹⁾ 6. Humidity ⁽³⁾ 7. IR ⁽⁴⁾ 8. DWV at Test Voltage ⁽¹⁾

FLOWCHARTS Continued

Pin-to-Closest Metallic Hardware

<p><u>Group 9</u> ARM6-02-06.0-LU-XX-X-1 AMF6-02-S-RA-XR 2 Assemblies</p>	<p><u>Group 10</u> ARM6-02-06.0-LU-XX-X-1 2 Assemblies</p>	<p><u>Group 11</u> AMF6-02-S-RA-XR 2 Assemblies</p>	<p><u>Group 12</u> ARM6-02-06.0-LU-XX-X-1 AMF6-02-S-RA-XR 2 Assemblies</p>																														
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-
- (1) DWV at Test Voltage = EIA-364-20
 Test Condition = 1 (Sea Level)
 DWV test voltage is equal to 75% of the lowest breakdown voltage
 Test voltage applied for 60 seconds
 - (2) DWV Breakdown = EIA-364-20
 Test Condition = 1 (Sea Level)
 DWV test voltage is equal to 75% of the lowest breakdown voltage
 Test voltage applied for 60 seconds
 - (3) Humidity = EIA-364-31
 Test Condition = B (240 Hours)
 Test Method = III (+25°C to +65°C @ 90% RH to 98% RH)
 Test Exceptions: ambient pre-condition and delete steps 7a and 7b
 - (4) IR = EIA-364-21
 Test Condition = 500 Vdc, 2 Minutes Max
 - (5) Thermal Shock = Other
 Exposure Time at Temperature Extremes = 1/2 Hour
 Method A, Test Condition = I (-40°C to +85°C)
 Test Duration = A-3 (100 Cycles)
 EIA-364-32, change Thermal Shock profile from -55°C/85°C to -40°C/85°C, due to temp limit of cable.

FLOWCHARTS Continued**Current Carrying Capacity**Group 1

ARM6-02-12.0-LU-LU-4-1
AMF6-02-S-RA-XR
1 Pins Powered
Signal

Step	Description
1.	CCC (2) Rows = 1 Number of Positions = 1

Group 2

ARM6-02-12.0-LU-LU-4-1
AMF6-02-S-RA-XR
2 Pins Powered
Signal

Step	Description
1.	CCC (2) Rows = 1 Number of Positions = 2

Group 3

ARM6-02-12.0-LU-LU-4-1
AMF6-02-S-RA-XR
3 Pins Powered
Signal

Step	Description
1.	CCC (2) Rows = 1 Number of Positions = 3

Group 4

ARM6-02-12.0-LU-LU-4-1
AMF6-02-S-RA-XR
4 Pins Powered
Signal

Step	Description
1.	CCC (2) Rows = 1 Number of Positions = 4

Group 5

ARM6-02-12.0-LU-LU-4-1
AMF6-02-S-RA-XR
1 Pins Powered
Ground

Step	Description
1.	CCC (2) Rows = 1 Number of Positions = 1

Group 6

ARM6-02-12.0-LU-LU-4-1
AMF6-02-S-RA-XR
All Power

Step	Description
1.	CCC - All Power (1)

(1) CCC - All Power = EIA-364-70

Method 2, Temperature Rise Versus Current Curve

(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

(2) CCC = EIA-364-70

Method 2, Temperature Rise Versus Current Curve

(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

FLOWCHARTS Continued**Mechanical Shock/Random Vibration/LLCR**Group 1

ARM6-02-12.0-LU-XX-X-1

AMF6-02-S-RA-XR

8 Assemblies

Step	Description
1.	LLCR ⁽¹⁾
2.	Mechanical Shock ⁽²⁾
3.	Random Vibration ⁽³⁾
4.	LLCR ⁽¹⁾ Max Delta = 15 mOhm

(1) LLCR = EIA-364-23

Open Circuit Voltage = 20 mV Max

Test Current = 100 mA Max

(2) Mechanical Shock = EIA-364-27

Test Condition = C (100 G Peak, 6 milliseconds, Half Sine)

Number of Shocks = 3 Per Direction, Per Axis, 18 Total

(3) Random Vibration = EIA-364-28

Condition = VB (7.56 gRMS Average, 2 Hours/Axis)

Mechanical Shock/Random Vibration/Event DetectionGroup 1

ARM6-02-12.0-LU-XX-X-1

AMF6-02-S-RA-XR

16 Points

Step	Description
1.	Nanosecond Event Detection (Mechanical Shock) ⁽¹⁾
2.	Nanosecond Event Detection (Random Vibration) ⁽²⁾

(1) Nanosecond Event Detection (Mechanical Shock)

Use EIA-364-87 for Nanosecond Event Detection:

Test Condition = F (50 nanoseconds at 10 ohms)

Use EIA-364-27 for Mechanical Shock:

Test Condition = C (100 G Peak, 6 milliseconds, Half Sine)

Number of Shocks = 3 Per Direction, Per Axis, 18 Total

(2) Nanosecond Event Detection (Random Vibration)

Use EIA-364-87 for Nanosecond Event Detection:

Test Condition = F (50 nanoseconds at 10 ohms)

Use EIA-364-28 for Random Vibration:

Condition = VB (7.56 gRMS Average, 2 Hours/Axis)

FLOWCHARTS Continued**Cable Pull**

Group 1
 ARM6-02-12.0-LU-LU-4-1
 AMF6-02-S-RA-XR
 5 Assemblies
 0 Degrees

Step	Description
1.	Cable Pull (1)

Group 2
 ARM6-02-12.0-LU-LU-4-1
 AMF6-02-S-RA-XR
 5 Assemblies
 90 Degrees

Step	Description
1.	Cable Pull (1)

(1) Cable Pull = EIA-364-38
 Measure and Record Force Required to Failure
 Failure = Discontinuity >1 microsecond at 10 ohms

Cable Flex

Group 1
 ARM6-02-16.0-LU-LU-4-1
 AMF6-02-S-RA-XR
 8 Assemblies
 Flat Cable

Step	Description
1.	IR (3)
2.	DWV at Test Voltage(2) Test Voltage = 500 V
3.	Cable Flex (1)
4.	Visual Inspection
5.	IR (3)
6.	DWV at Test Voltage(2) Test Voltage = 500 V

(1) Cable Flex = EIA-364-41
 Circular Jacket Cable - to be tested 90° each direction (180° total)
 Flat Cable - to be tested 70° each direction (140° total)
 Monitor continuity during flex testing
 Failure = Discontinuity >1 microsecond at 10 ohms

(2) DWV at Test Voltage = EIA-364-20
 Test Condition = 1 (Sea Level)
 DWV test voltage is equal to 75% of the lowest breakdown voltage
 Test voltage applied for 60 seconds

(3) IR = EIA-364-21
 Test Condition = 500 Vdc, 2 Minutes Max

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 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.

THERMAL SHOCK:

- 1) EIA-364-32, *Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors*.
- 2) Test Condition I: -40°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.

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 G
- 3) Peak Value: 100 G
- 4) Duration: 6 Milliseconds
- 5) Wave Form: Sawtooth
- 6) Velocity: 12.3 ft/s
- 7) Number of Shocks: 3 Shocks / Direction, 3 Axis (18 Total)

VIBRATION:

- 1) Reference document: EIA-364-28, *Vibration Test Procedure for Electrical Connectors*
- 2) Test Condition V, Letter B
- 3) Power Spectral Density: 0.10 G² / Hz
- 4) G 'RMS': 7.56
- 5) Frequency: 50 to 2000 Hz
- 6) Duration: 2.0 Hours per axis (3 axis total)

NANOSECOND-EVENT DETECTION:

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

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.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

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 four temperature points are reported:
 - a. Ambient
 - b. 65° C
 - c. 75° C
 - d. 95° C
- 8) Typically, neighboring contacts (in close proximity to maximize heat buildup) 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.

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.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

LLCR:

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
 - a. $\leq +5.0$ 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 $+1000$ mOhms: -----Unstable
 - f. $>+1000$ mOhms:-----Open Failure

GAS TIGHT:

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

- 1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
- 2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
- 3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
 - a. $\leq +5.0$ 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 $+1000$ mOhms:-----Unstable
 - f. $>+1000$ 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.

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 1000 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).

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

CABLE PULL:

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



Fig. 1
90° Connector pull

CABLE Flex:

- 1) Oscillate and monitor electrical continuity for open circuit indication.
 - a. $\pm 70^\circ$ Flex Mode, bend up to 500 cycles, load on cable end 1 Oz.

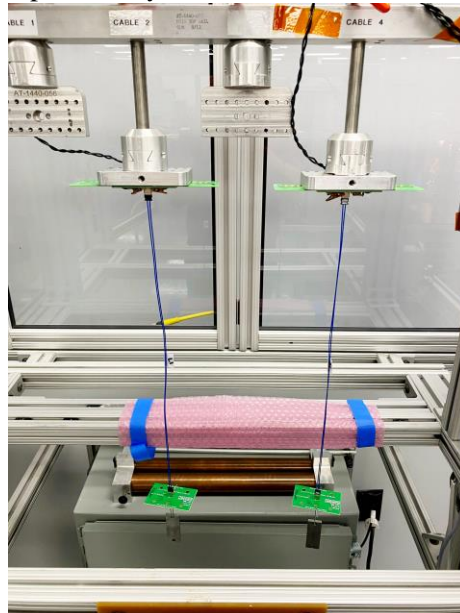


Fig. 2
(Setup picture)

RESULTS

Temperature Rise, CCC at a 20% de-rating

Signal Pin

- CCC for a 30°C Temperature Rise-----2.4 A per contact with 1 contact (1 x 1) powered
- CCC for a 30°C Temperature Rise-----1.6 A per contact with 2 contacts (1 x 2) powered
- CCC for a 30°C Temperature Rise-----1.4 A per contact with 3 contacts (1 x 3) powered
- CCC for a 30°C Temperature Rise-----1.3 A per contact with 4 contacts (1 x 4) powered

Ground Pin

- CCC for a 30°C Temperature Rise-----5.0 A per contact with 1 contact (1 x 1) powered

All Power

- CCC for a 30°C Temperature Rise-----4.5 A per contact with 1 contact (1 x 1) powered at All Signal
Powered at ½ rated current

Mating – Unmating Forces

Thermal Aging Group

- **Initial**
 - **Mating**
 - Min ----- 2.24 lbs
 - Max----- 2.65 lbs
 - **Unmating**
 - Min ----- 2.08 lbs
 - Max----- 2.65 lbs
- **After Thermal**
 - **Mating**
 - Min ----- 2.37 lbs
 - Max----- 3.28 lbs
 - **Unmating**
 - Min ----- 2.59 lbs
 - Max----- 2.99 lbs

Mating/Unmating Durability Group

- **Initial**
 - **Mating**
 - Min ----- 2.19 lbs
 - Max----- 2.60 lbs
 - **Unmating**
 - Min ----- 2.25 lbs
 - Max----- 2.63 lbs
- **After 25 Cycles**
 - **Mating**
 - Min ----- 4.34 lbs
 - Max----- 5.84 lbs
 - **Unmating**
 - Min ----- 3.00 lbs
 - Max----- 4.29 lbs
- **After Humidity**
 - **Mating**
 - Min ----- 1.69 lbs
 - Max----- 2.73 lbs
 - **Unmating**
 - Min ----- 1.66 lbs
 - Max----- 2.31 lbs

RESULTS Continued

Mating/Unmating Basic (ARM6-01-06.0-LU-XX-X-1/ AMF6-01-S-RA-XR)

- **Initial**
 - **Mating**
 - **Min** ----- 1.91 lbs
 - **Max**----- 2.91 lbs
 - **Unmating**
 - **Min** ----- 1.80 lbs
 - **Max**----- 2.85 lbs
- **After 25 Cycles**
 - **Mating**
 - **Min** ----- 3.60 lbs
 - **Max**----- 4.71 lbs
 - **Unmating**
 - **Min** ----- 2.68 lbs
 - **Max**----- 4.01 lbs

Normal Force at 0.0132 inches deflection

- **Initial**
 - **Min** -----92.10 gf **Set ----- 0.0030 inch**
 - **Max** ----- 113.40 gf **Set ----- 0.0035 inch**
- **Thermal**
 - **Min** -----92.10 gf **Set----- 0.0034 inch**
 - **Max** ----- 110.60 gf **Set----- 0.0041 inch**

Cable Pull force

- **0° Pull**
 - **Min** ----- 4.16 lbs
 - **Max** ----- 2.25 lbs
- **90° Pull**
 - **Min** -----12.65 lbs
 - **Max** -----16.94 lbs

RESULTS Continued

Insulation Resistance minimums, IR

Pin to Pin

- **Initial**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed
- **Thermal Shock**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed
- **Humidity**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed

Pin to Ground

- **Initial**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed
- **Thermal Shock**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed
- **Humidity**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed

Pin to Closest Metallic Hardware

- **Initial**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed
- **Thermal Shock**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed
- **Humidity**
 - Mated -----45000 Meg Ω ----- Passed
 - Unmated -----45000 Meg Ω ----- Passed

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
 - Breakdown Voltage -----749VAC
 - Test Voltage -----565VAC
 - Working Voltage -----185 VAC

Pin to Pin

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

Pin to Ground

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

Pin to Closest Metallic Hardware

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

RESULTS Continued

Cable Flex:

Insulation Resistance minimums, IR

Pin to Pin

- **Initial**
 - Mated-----45000 Meg Ω ----- Passed
- **After 500 flex cycles**
 - Mated-----45000 Meg Ω ----- Passed

Pin to Ground

- **Initial**
 - Mated-----45000 Meg Ω ----- Passed
- **After 500 flex cycles**
 - Mated-----45000 Meg Ω ----- Passed

Pin to Closest Metallic Hardware

- **Initial**
 - Mated-----45000 Meg Ω ----- Passed
- **After 500 flex cycles**
 - Mated-----45000 Meg Ω ----- Passed

Dielectric Withstanding Voltage minimums, DWV

- Test Voltage -----565 VAC

Pin to Pin

- **Initial DWV** -----Passed
- **After 500 Flex cycles DWV** -----Passed

Pin to Ground

- **Initial DWV** -----Passed
- **After 500 Flex cycles DWV**----- Passed

Pin to Closest Metallic Hardware

- **Initial DWV** -----Passed
- **After 500 Flex cycles DWV** ----- Passed

RESULTS Continued**LLCR Gas Tight (40 LLCR test points)****Signal pin**

- Initial ----- 154.58 mOhms Max

Ground Pin

- Initial ----- 34.56 mOhms Max
- Gas-Tight
 - <= +5.0 mOhms ----- 38 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 1 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 1 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

LLCR Thermal Aging (40 LLCR test points)**Signal pin**

- Initial ----- 156.56 mOhms Max

Ground Pin

- Initial ----- 35.70 mOhms Max
- Thermal Aging
 - <= +5.0 mOhms ----- 25 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 5 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

LLCR Durability (40 LLCR test points)**Signal pin**

- Initial ----- 154.39 mOhms Max

Ground Pin

- Initial ----- 34.62 mOhms Max
- Durability, 25 Cycles
 - <= +5.0 mOhms ----- 35 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 5 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 0 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure
- Thermal
 - <= +5.0 mOhms ----- 36 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 3 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 1 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure
- Humidity
 - <= +5.0 mOhms ----- 33 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 4 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 3 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 0 Points ----- Marginal
 - +50.1 to +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

RESULTS Continued

LLCR Shock & Vibration (40 LLCR test points)

Signal pin

- Initial -----334.95 mOhms Max

Ground Pin

- Initial ----- 69.62 mOhms Max
- Shock &Vibration
 - <= +5.0 mOhms----- 36 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 +1000 mOhms----- 0 Points ----- Unstable
 - >+1000 mOhms----- 0 Points ----- Open Failure

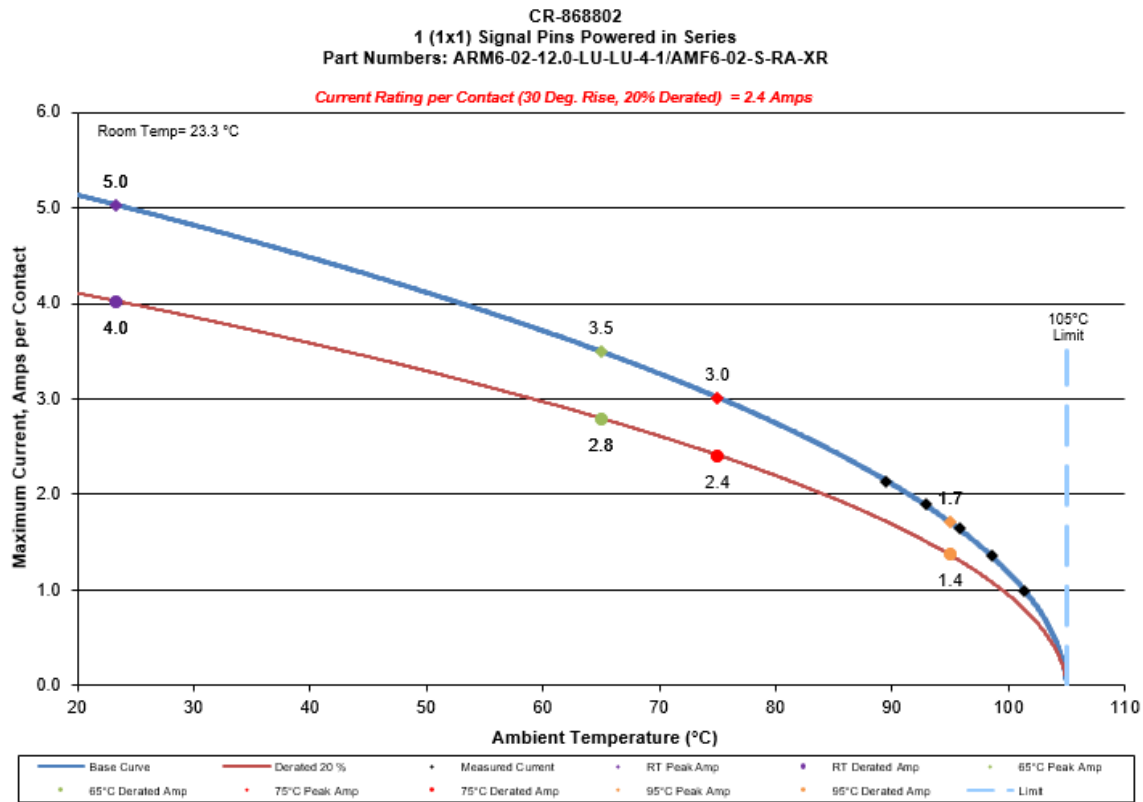
Mechanical Shock & Random Vibration:

- Shock
 - No Damage----- Pass
 - 50 Nanoseconds ----- Pass
- Vibration
 - No Damage----- Pass
 - 50 Nanoseconds ----- Pass

DATA SUMMARIES

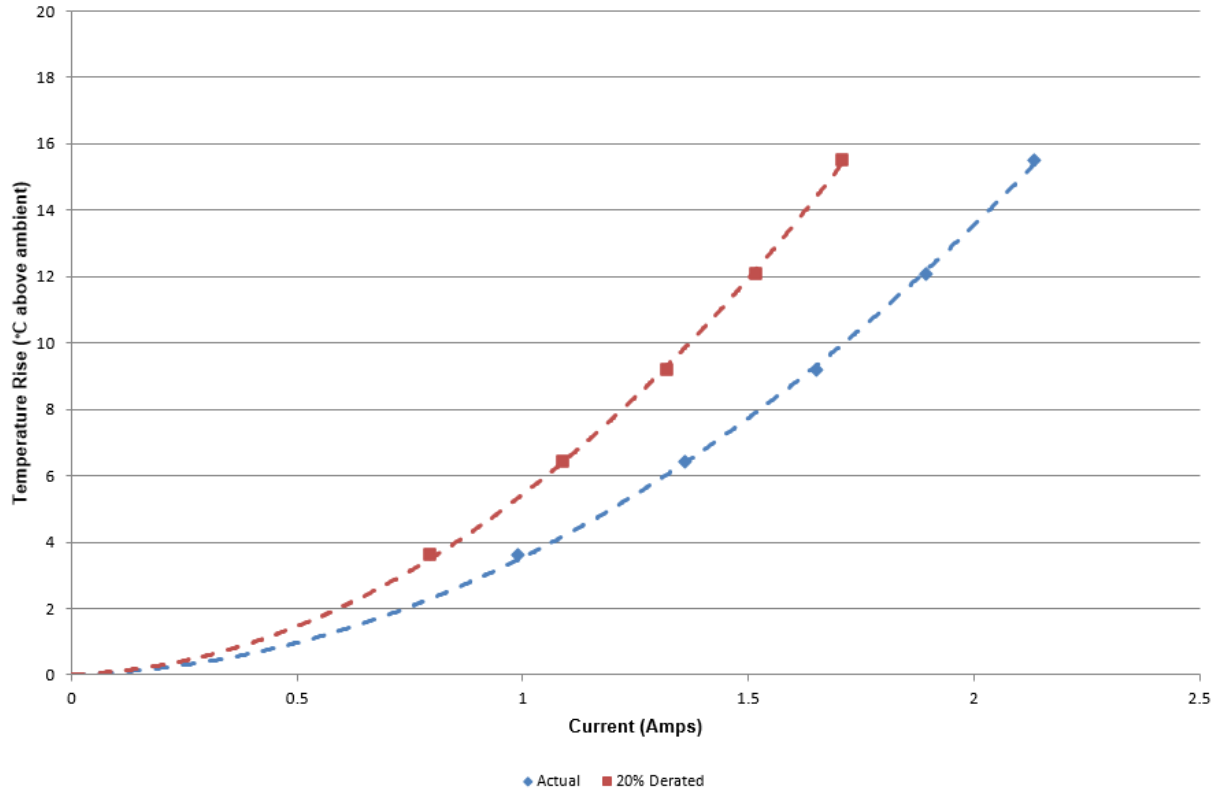
TEMPERATURE RISE (Current Carrying Capacity, CCC):

- 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 1 adjacent conductors/contacts powered



DATA SUMMARIES Continued

CR-868802
1 (1x1) Signal Pins Powered in Series
Part Numbers: ARM6-02-12.0-LU-LU-4-1/AMF6-02-S-RA-XR

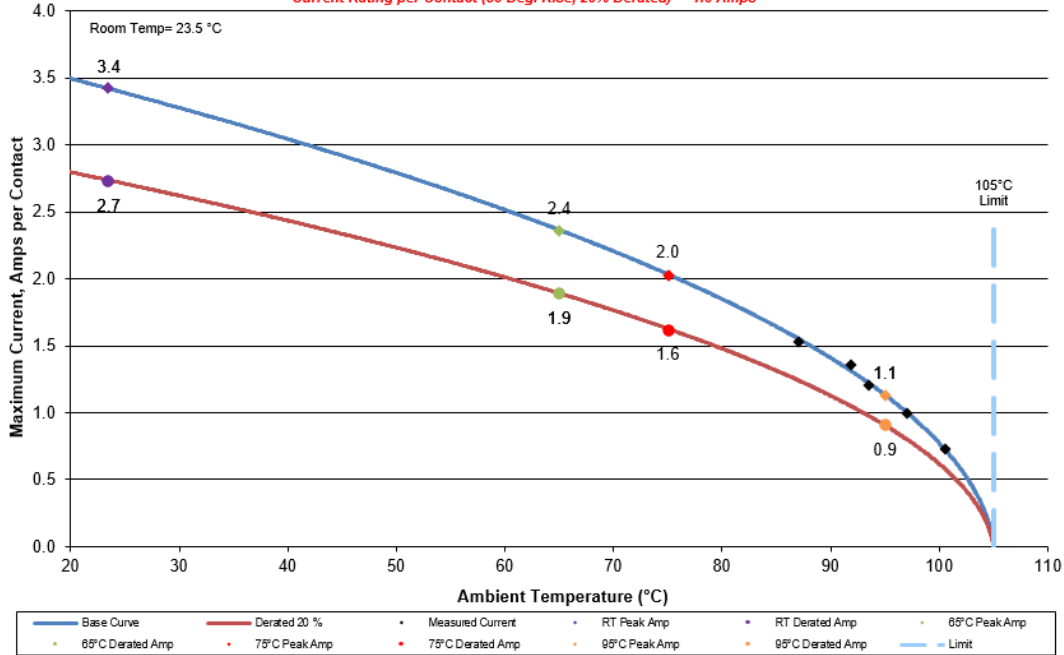


DATA SUMMARIES Continued

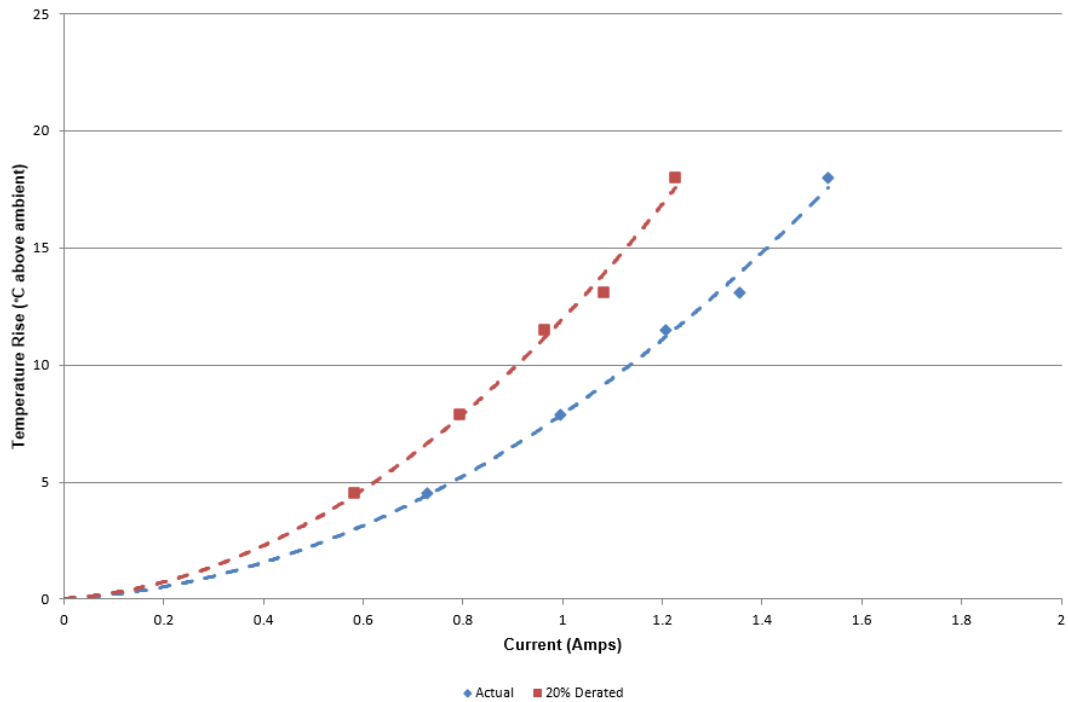
b. Linear configuration with 2 adjacent conductors/contacts powered

CR-868802
 2 (1x2) Signal Pins Powered in Series
 Part Numbers: ARM6-02-12.0-LU-LU-4-1/AMF6-02-S-RA-XR

Current Rating per Contact (30 Deg. Rise, 20% Derated) = 1.6 Amps



CR-868802
 2 (1x2) Signal Pins Powered in Series
 Part Numbers: ARM6-02-12.0-LU-LU-4-1/AMF6-02-S-RA-XR

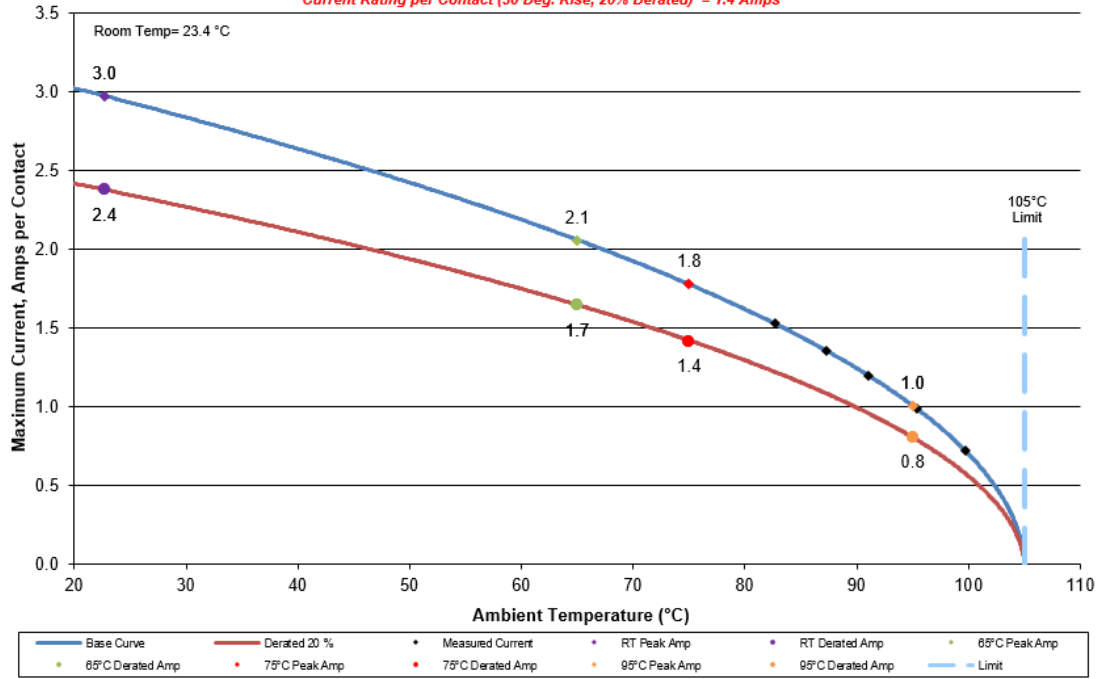


DATA SUMMARIES Continued

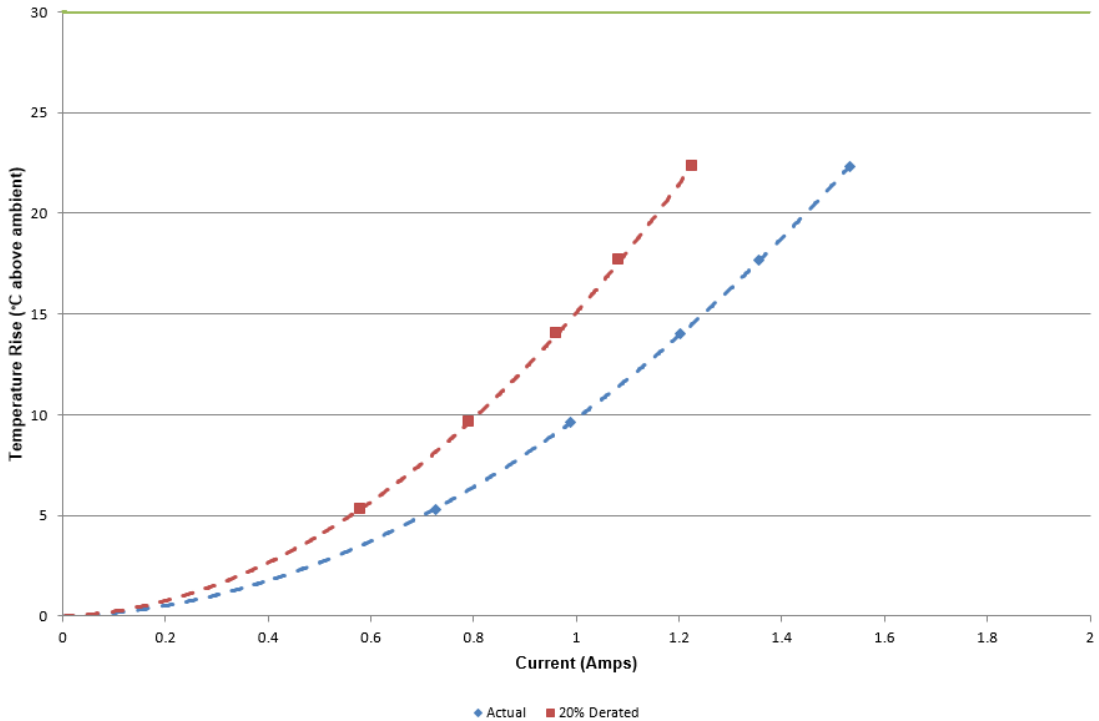
c. Linear configuration with 3 adjacent conductors/contacts powered

CR-868802
 3 (1x3) Signal Pins Powered in Series
 Part Numbers: ARM6-02-12.0-LU-LU-4-1/AMF6-02-S-RA-XR

Current Rating per Contact (30 Deg. Rise, 20% Derated) = 1.4 Amps

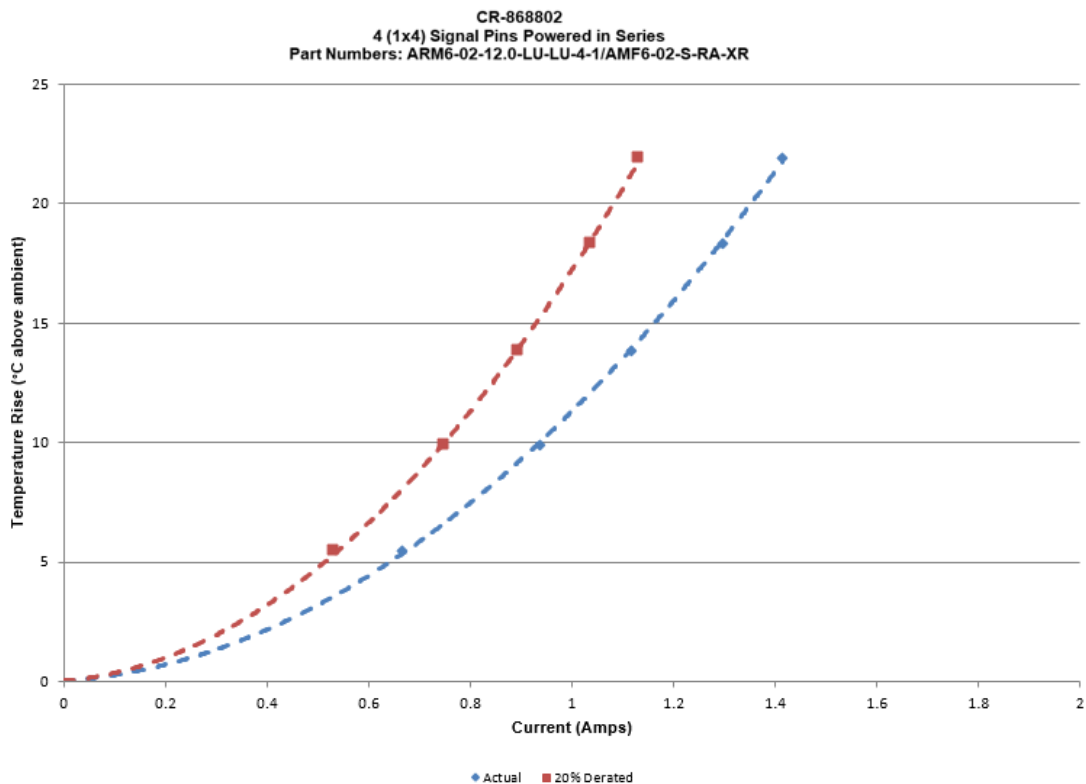
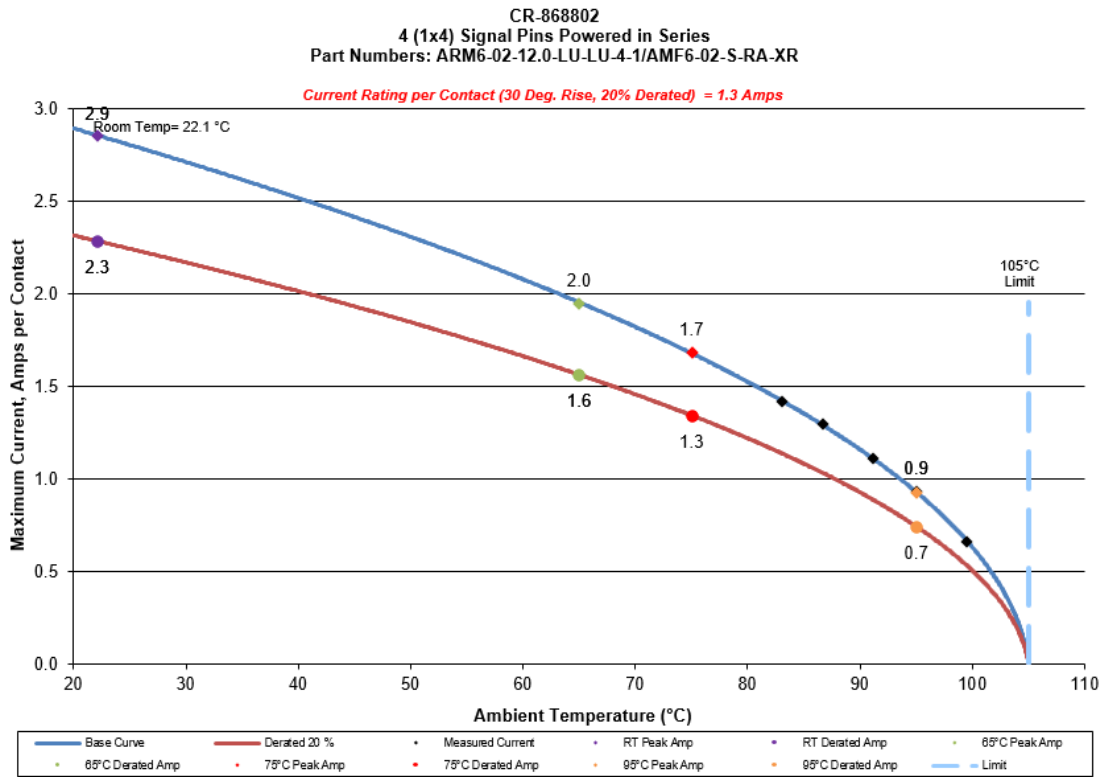


CR-868802
 3 (1x3) Signal Pins Powered in Series
 Part Numbers: ARM6-02-12.0-LU-LU-4-1/AMF6-02-S-RA-XR



DATA SUMMARIES Continued

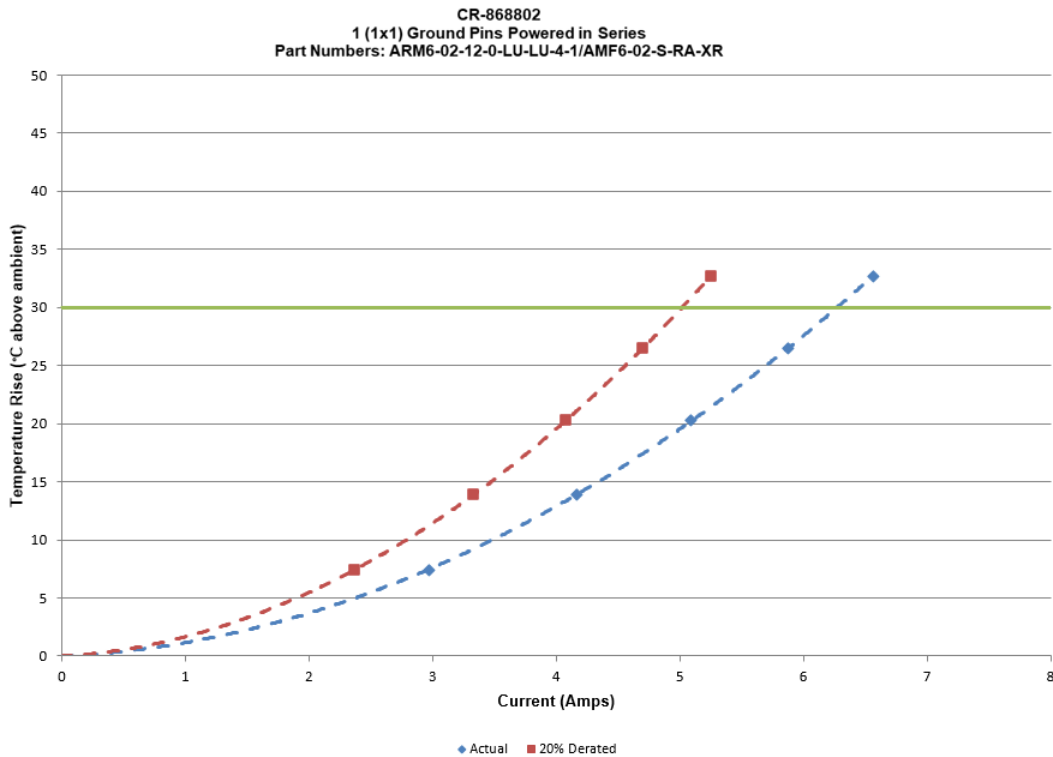
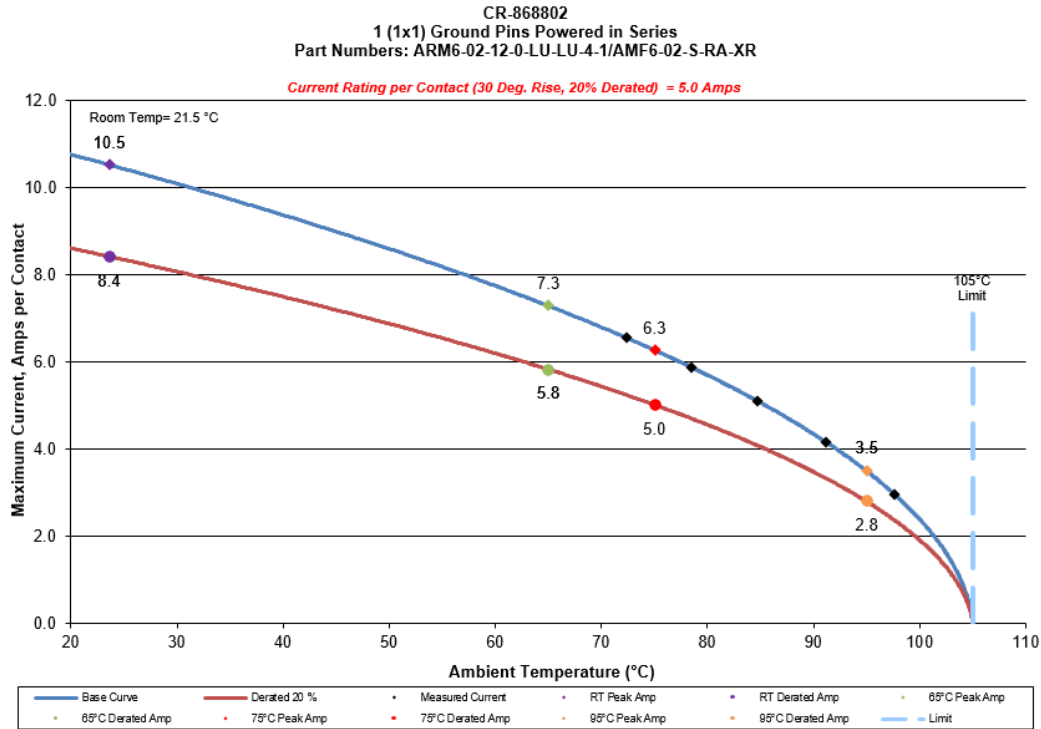
d. Linear configuration with 4 adjacent conductors/contacts powered



DATA SUMMARIES Continued

Ground Pin

- a. Linear configuration with 1 adjacent conductors/contacts powered

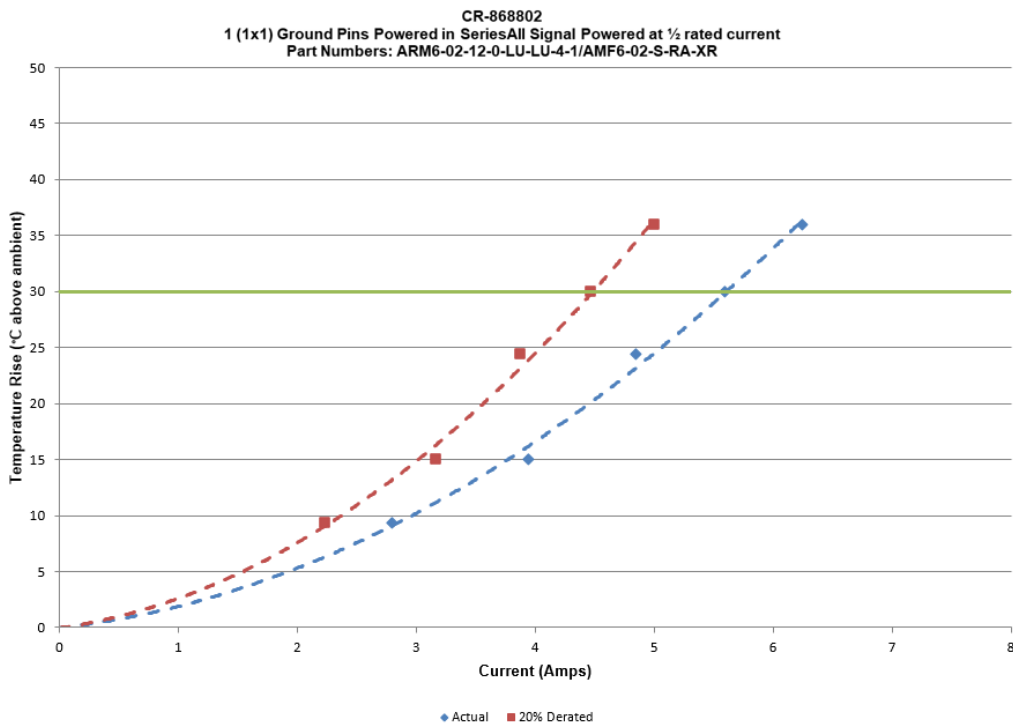
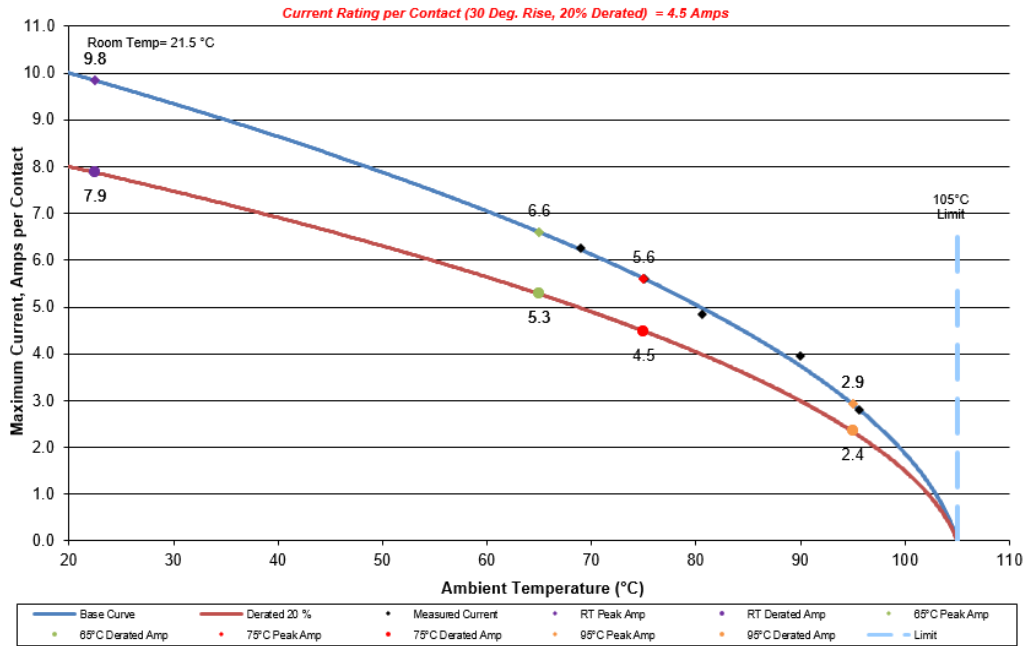


DATA SUMMARIES Continued

All Power

b. Linear configuration with 1 adjacent conductors/contacts powered

CR-868802
 1 (1x1) Ground Pins Powered in SeriesAll Signal Powered at 1/2 rated current
 Part Numbers: ARM6-02-12-0-LU-LU-4-1/AMF6-02-S-RA-XR



DATA SUMMARIES Continued**MATING/UNMATING:****Thermal Aging Group**

	Initial				After Thermals			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	9.96	2.24	9.25	2.08	10.54	2.37	11.52	2.59
Maximum	11.79	2.65	11.79	2.65	14.59	3.28	13.30	2.99
Average	10.78	2.42	10.57	2.38	12.41	2.79	12.34	2.77
St Dev	0.64	0.15	0.94	0.21	1.49	0.33	0.59	0.13
Count	8	8	8	8	8	8	8	8

Mating/Unmating Durability Group

	Initial				25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	9.74	2.19	10.01	2.25	19.30	4.34	13.34	3.00
Maximum	11.56	2.60	11.70	2.63	25.98	5.84	19.08	4.29
Average	10.43	2.34	10.88	2.45	22.11	4.97	15.25	3.43
St Dev	0.63	0.14	0.68	0.15	2.10	0.47	1.83	0.41
Count	8	8	8	8	8	8	8	8

	After Humidity			
	Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	7.52	1.69	7.38	1.66
Maximum	12.14	2.73	10.27	2.31
Average	10.09	2.27	9.28	2.09
St Dev	1.69	0.38	1.00	0.22
Count	8	8	8	8

Mating/Unmating Basic (ARM6-01-06.0-LU-XX-X-1/ AMF6-01-S-RA-XR)

	Initial				25 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)	Newton's	Force (Lbs)
Minimum	8.45	1.90	8.01	1.80	16.01	3.60	11.92	2.68
Maximum	12.94	2.91	12.68	2.85	20.95	4.71	17.84	4.01
Average	10.26	2.31	11.24	2.53	18.18	4.09	14.40	3.24
St Dev	1.33	0.30	1.47	0.33	1.69	0.38	1.71	0.38
Count	8	8	8	8	8	8	8	8

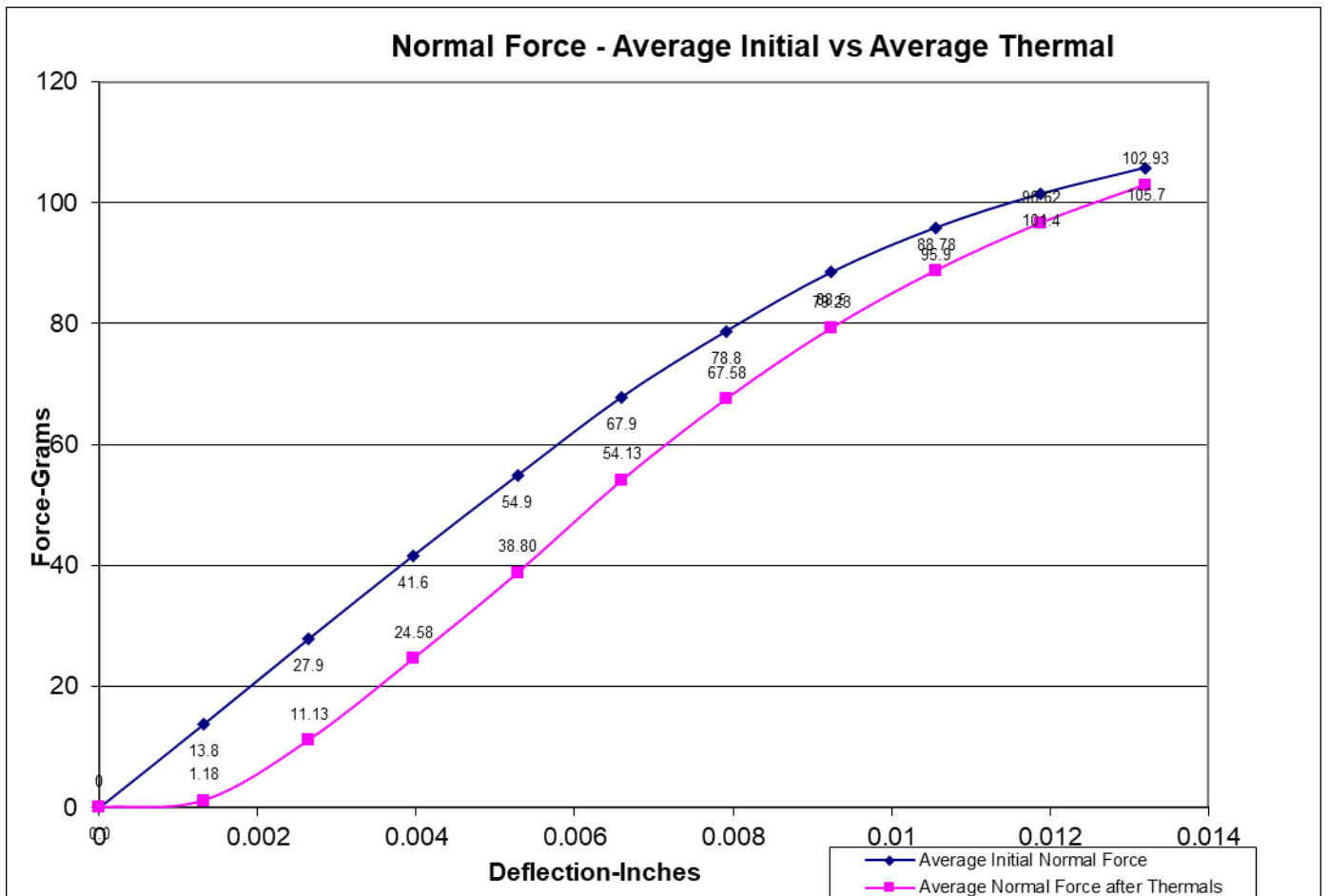
DATA SUMMARIES Continued

NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

- 1) Calibrated force gauges are used along with computer-controlled positioning equipment.
- 2) Typically, 8-10 readings are taken and the averages reported.

Initial	Deflections in inches Forces in Grams										
	<u>0.0013</u>	<u>0.0026</u>	<u>0.0040</u>	<u>0.0053</u>	<u>0.0066</u>	<u>0.0079</u>	<u>0.0092</u>	<u>0.0106</u>	<u>0.0119</u>	<u>0.0132</u>	<i>SET</i>
Averages	13.81	27.88	41.63	54.94	67.90	78.78	88.47	95.85	101.41	105.73	0.0032
Min	7.20	21.10	34.80	45.90	56.90	65.70	74.60	81.60	87.30	92.10	0.0030
Max	19.10	33.00	47.90	61.60	74.70	85.00	94.80	102.70	108.60	113.40	0.0035
St. Dev	2.990	3.413	4.004	4.468	4.890	5.047	5.093	5.137	5.279	5.577	0.0002
Count	12	12	12	12	12	12	12	12	12	12	12

After Thermals	Deflections in inches Forces in Grams										
	<u>0.0013</u>	<u>0.0026</u>	<u>0.0040</u>	<u>0.0053</u>	<u>0.0066</u>	<u>0.0079</u>	<u>0.0092</u>	<u>0.0106</u>	<u>0.0119</u>	<u>0.0132</u>	<i>SET</i>
Averages	1.18	11.13	24.58	38.80	54.13	67.58	79.23	88.78	96.62	102.93	0.0036
Min	-0.20	4.00	15.30	30.40	45.10	59.20	70.30	79.00	85.70	92.10	0.0034
Max	6.00	19.50	33.40	48.60	63.30	76.00	87.90	97.10	105.00	110.60	0.0041
St. Dev	1.988	4.674	5.820	6.754	6.897	6.283	5.989	5.870	6.155	6.004	0.0002
Count	12	12	12	12	12	12	12	12	12	12	12



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

	Pin to Pin		
	Mated	Unmated	Unmated
Minimum	ARM6/AMF6	ARM6	AMF6
Initial	45000	45000	45000
Thermal	45000	45000	45000
Humidity	45000	45000	45000

	Pin to Ground		
	Mated	Unmated	Unmated
Minimum	ARM6/AMF6	ARM6	AMF6
Initial	45000	45000	45000
Thermal	45000	45000	45000
Humidity	45000	45000	45000

	Pin to Closest Metallic Hardware		
	Mated	Unmated	Unmated
Minimum	ARM6/AMF6	ARM6	AMF6
Initial	45000	45000	45000
Thermal	45000	45000	45000
Humidity	45000	45000	45000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	ARM6/AMF6
Break Down Voltage	749
Test Voltage	565
Working Voltage	185

Pin to Pin	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

Pin to Ground	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

Pin to Closest Metallic Hardware	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

DATA SUMMARIES Continued

**Cable Pull Force:
0° Pull**

	Force (lbs)
Minimum	4.16
Maximum	5.25
Average	4.67

90° Pull

	Force (lbs)
Minimum	12.65
Maximum	16.94
Average	15.34

Cable Flex:

Insulation Resistance minimums, IR

Pin to Pin	
Mated	
Minimum	
Initial	45000
After 500 Flex Cycles	45000
Pin to Ground	
Mated	
Minimum	
Initial	45000
After 500 Flex Cycles	45000
Pin to Closest Metallic Hardware	
Mated	
Minimum	
Initial	45000
After 500 Flex Cycles	45000

Dielectric Withstanding Voltage minimums, DWV

Voltage Rating Summary	
Minimum	ARM6/AMF6
Test Voltage	565
Pin to Pin	
Initial Test Voltage	Passed
After 500 Flex Cycles Test Voltage	Passed
Pin to Ground	
Initial Test Voltage	Passed
After 500 Flex Cycles Test Voltage	Passed
Pin to Closest Metallic Hardware	
Initial Test Voltage	Passed
After 500 Flex Cycles Test Voltage	Passed

DATA SUMMARIES Continued

LLCR Durability:

- 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. $\leq +5.0$ 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 $+1000$ mOhms: -----Unstable
 - f. $>+1000$ mOhms: -----Open Failure

LLCR Measurement Summaries by Pin Type				
Date	1/9/2023	1/11/2023	1/18/2023	2/10/2023
Room Temp (Deg C)	23	24	24	23
Rel Humidity (%)	52	55	52	55
Technician	Peter Chen	Peter Chen	Peter Chen	Peter Chen
Pin Type: Signal 1				
mOhm values	Actual Initial	Delta Cycles	Delta Therm Shck	Delta Humidity
Average	147.16	2.49	2.37	3.67
St. Dev.	4.24	2.28	2.49	3.44
Min	137.99	0.06	0.2	0.18
Max	154.39	8.38	10.89	14.9
Summary Count	32	32	32	32
Total Count	32	32	32	32
Pin Type: GND 1				
Average	33.16	0.87	1.65	3.93
St. Dev.	0.74	0.81	0.67	1.96
Min	32.36	0.13	0.65	1.72
Max	34.62	2.04	2.9	8.25
Summary Count	8	8	8	8
Total Count	8	8	8	8

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	≤ 5	$>5 \ \& \ \leq 10$	$>10 \ \& \ \leq 15$	$>15 \ \& \ \leq 50$	$>50 \ \& \ \leq 1000$	>1000
Cycles	35	5	0	0	0	0
Therm Shck	36	3	1	0	0	0
Humidity	33	4	3	0	0	0

DATA SUMMARIES Continued

LLCR Thermal Aging:

- 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. $\leq +5.0$ 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 $+1000$ mOhms: -----Unstable
 - f. $>+1000$ mOhms:-----Open Failure

LLCR Measurement Summaries by Pin Type			
Date	1/28/2023	2/13/2023	
Room Temp (Deg C)	23	23	
Rel Humidity (%)	54	54	
Technician	Peter Chen	Peter Chen	
mOhm values	Actual	Delta	
	Initial	Thermal	
Pin Type: Signal 1			
Average	149.34	4.17	
St. Dev.	3.07	1.49	
Min	142.09	0.23	
Max	154.56	6.82	
Summary Count	32	32	
Total Count	32	32	
Pin Type: GND 1			
Average	34.02	5.17	
St. Dev.	1.2	2.56	
Min	31.75	0.24	
Max	35.7	8.42	
Summary Count	8	8	
Total Count	8	8	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	≤ 5	$>5 \ \&\leq 10$	$>10 \ \&\leq 15$	$>15 \ \&\leq 50$	$>50 \ \&\leq 1000$	>1000
Thermal	25	15	0	0	0	0

DATA SUMMARIES Continued

LLCR Gas Tight:

- 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. $\leq +5.0$ 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 $+1000$ mOhms: -----Unstable
 - f. $>+1000$ mOhms: -----Open Failure

LLCR Measurement Summaries by Pin Type			
Date	1/17/2023	1/19/2023	
Room Temp (Deg C)	23	24	
Rel Humidity (%)	55	53	
Technician	Peter Chen	Peter Chen	
mOhm values	Actual	Delta	
	Initial	Acid Vapor	
Pin Type: Signal 1			
Average	148.42	1.5	
St. Dev.	3.68	2.25	
Min	137.89	0.05	
Max	154.58	10.69	
Summary Count	32	32	
Total Count	32	32	
Pin Type: GND 1			
Average	33.87	1.42	
St. Dev.	0.58	1.06	
Min	32.84	0.38	
Max	34.56	3.6	
Summary Count	8	8	
Total Count	8	8	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	≤ 5	$>5 \ \& \ \leq 10$	$>10 \ \& \ \leq 15$	$>15 \ \& \ \leq 50$	$>50 \ \& \ \leq 1000$	>1000
Acid Vapor	38	1	1	0	0	0

DATA SUMMARIES Continued

LLCR Shock &Vibration:

- 1). A total of 80 points were measured.
- 2). EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
- 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 $+1000$ mOhms -----Unstable
 - f. $>+1000$ mOhms: -----Open Failure

LLCR Measurement Summaries by Pin Type			
Date	2/23/2023	2/28/2023	
Room Temp (Deg C)	22	23	
Rel Humidity (%)	46	39	
Technician	Daniel Haydon	Daniel Haydon	
mOhm values			
	Actual	Delta	
	Initial	Shock-Vib	
Pin Type: Signal 1			
Average	309.59	2.62	
St. Dev.	15.53	2.29	
Min	284.55	0.06	
Max	334.95	8.71	
Summary Count	32	32	
Total Count	32	32	
Pin Type: GND 1			
Average	66.49	2.43	
St. Dev.	3.17	1.06	
Min	62.76	1.26	
Max	69.62	4.26	
Summary Count	8	8	
Total Count	8	8	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	≤ 5	$>5 \ \&\leq 10$	$>10 \ \&\leq 15$	$>15 \ \&\leq 50$	$>50 \ \&\leq 1000$	>1000
Shock-Vib	36	4	0	0	0	0

Nanosecond Event Detection:

Shock and Vibration Event Detection Summary	
Contacts tested	60
Test Condition	C, 100g's, 6ms, Half-Sine
Shock Events	0
Test Condition	V-B, 7.56 rms g
Vibration Events	0
Total Events	0

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: 4/26/2022, Next Cal: 4/25/2023**Equipment #:** HZ-OV-01**Description:** Oven**Manufacturer:** Huida**Model:** CS101-1E**Serial #:** CS101-1E-B**Accuracy:** Last Cal: 12/13/2021, Next Cal: 12/12/2022**Equipment #:** HZ-THC-01**Description:** Humidity transmitter**Manufacturer:** Theratron**Model:** SM-8-8200**Serial #:** 38846**Accuracy:** Last Cal: 2/28/2023, Next Cal: 2/27/2024**Equipment #:** HZ-TSC-01**Description:** Vertical Thermal Shock Chamber**Manufacturer:** Cincinnatti Sub Zero**Model:** VTS-3-6-6-SC/AC**Serial #:** 10-VT14994**Accuracy:** See Manual

... Last Cal: 06/28/2021, Next Cal: 06/27/2022

Equipment #: HZ-HPM-01**Description:** NA9636H**Manufacturer:** Ainuo**Model:** 6031A**Serial #:** 089601091**Accuracy:** Last Cal: 3/7/2022, Next Cal: 3/6/2023**Equipment #:** HZ-MO-05**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 3706**Serial #:** 1285188**Accuracy:** Last Cal: 11/15/2022, Next Cal: 11/14/2023**Equipment #:** HZ-MO-01**Description:** Micro-ohmmeter**Manufacturer:** Keithley**Model:** 2700**Serial #:** 1199807**Accuracy:** Last Cal: 04/28/2022, Next Cal: 04/28/2023

EQUIPMENT AND CALIBRATION SCHEDULES Continued**Equipment #:** HZ-PS-01**Description:** Power Supply**Manufacturer:** Agilent**Model:** 6031A**Serial #:** MY41000982**Accuracy:** Last Cal: 04/28/2022, Next Cal: 04/28/2023**Equipment #:** SVC-01**Description:** Shock & Vibration Table**Manufacturer:** Data Physics**Model:** LE-DSA-10-20K**Serial #:** 10037**Accuracy:** See Manual

... Last Cal: 11/31/2022, Next Cal: 11/31/2023

Equipment #: ACLM-01**Description:** Accelerometer**Manufacturer:** PCB Piezotronics**Model:** 352C03**Serial #:** 115819**Accuracy:** See Manual

... Last Cal: 07/09/2022, Next Cal: 07/09/2023

Equipment #: ED-03**Description:** Event Detector**Manufacturer:** Analysis Tech**Model:** 32EHD**Serial #:** 1100604**Accuracy:** See Manual

... Last Cal: 06/04/2022, Next Cal: 06/04/2023