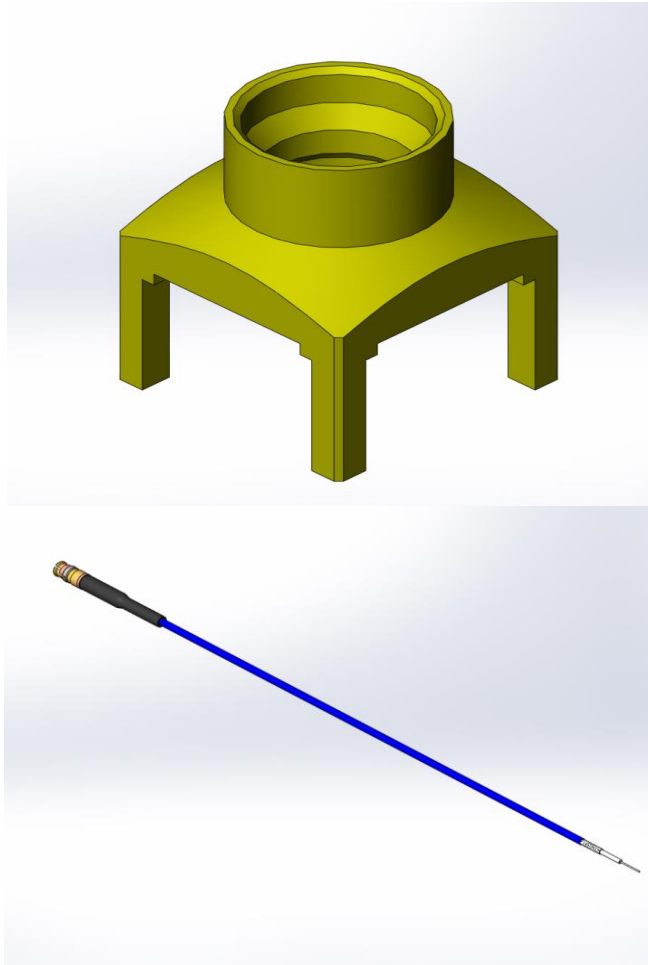




Project Number: Design Qualification Test Report	Tracking Code: CR-1073620_Report_Rev_1
Requested by: Tom Yahav	Date: 7/17/2024
Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2	Tech: Tony Wagoner
Part description: RF047/SMP	Qty to test: 20
Test Start: 05/15/2024	Test Completed: 05/25/2024



DESIGN QUALIFICATION TEST REPORT

RF047/SMP

RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2

Tracking Code: CR-1073620_Report_Rev_1	Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2
Part description: RF047/SMP	

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
6/18/2024	1	Initial Issue	PC

Tracking Code: CR-1073620_Report_Rev_1	Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2
Part description: RF047/SMP	

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: MIL-PRF-39012

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

FLOWCHARTS

IR/DWV

Pin-to-Ground

Group 1

RF047-A-00SJ-505050-0152
SMP-PF-P-GF-ST-TH2
4 Assemblies

Step	Description
1.	Interface Gaging MAX. CONTACT DEPTH = 0.006 "
2.	IR (2) - Non Standard
3.	DWV at Test Voltage(1) - Non Standard Test Voltage = 500 V
4.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>
5.	Thermal Shock (4) - Non Standard
6.	IR (2) - Non Standard
7.	DWV at Test Voltage(1) - Non Standard Test Voltage = 500 V
8.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>
9.	Interface Gaging MAX. CONTACT DEPTH = 0.006 "

Group 2

RF047-A-00MJ-505050-0152
SMP-PF-P-GF-ST-TH2
4 Assemblies

Step	Description
1.	Interface Gaging MAX. CONTACT DEPTH = 0.006 "
2.	IR (2) - Non Standard
3.	DWV at Test Voltage(1) - Non Standard Test Voltage = 500 V
4.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>
5.	Thermal Shock (4) - Non Standard
6.	IR (2) - Non Standard
7.	DWV at Test Voltage(1) - Non Standard Test Voltage = 500 V
8.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>
9.	Interface Gaging MAX. CONTACT DEPTH = 0.006 "

(1) DWV at Test Voltage = Other

Test Condition = 1 (Sea Level) Test voltage applied for 60 seconds
MIL-PRF-39012, Paragraph 4.6.14 per MIL-STD-202-301

(2) IR = Other

Test Condition = 500 Vdc, 2 Minutes Max
MIL-PRF-39012, Paragraph 4.6.8 per MIL-STD-202-302

(3) LLCR = Other

Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max
MIL-PRF-39012, Paragraph 4.6.13 except current to be 100mA nominal and voltage to be 20 mV maximum.

(4) Thermal Shock = Other

Exposure Time at Temperature Extremes = 1/2 Hour
Method A, Test Condition = I (-55°C to +125°C)
Test Duration = test condition B except 10 cycles instead of 5.
MIL-PRF-39012, Paragraph. 4.6.17 per MIL-STD-202-107

FLOWCHARTS Continued**Cable Pull**

Group 1 RF047-A-00SJ-505050-0152		Group 2 RF047-A-00MJ-505050-0152		Group 3 RF047-A-00SJ-505050-0152		Group 4 RF047-A-00MJ-505050-0152	
2 Assemblies 0 Degrees		2 Assemblies 0 Degrees		4 Assemblies 0 Degrees		4 Assemblies 0 Degrees	
Step	Description	Step	Description	Step	Description	Step	Description
1.	Cable Retention (2) - Non Standard <i>Note: Pull-to-destruct.</i>	1.	Cable Retention (2) - Non Standard <i>Note: Pull-to-destruct.</i>	1.	Interface Gaging MAX CONTACT DEPTH = 0.006 "	1.	Interface Gaging MAX CONTACT DEPTH = 0.006 "
				2.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>	2.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>
				3.	Cable Retention (1) - Non Standard APPLIED FORCE = 5 lbs	3.	Cable Retention (1) - Non Standard APPLIED FORCE = 5 lbs
				4.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>	4.	LLCR (3) - Non Standard <i>Note: Signal and ground.</i>
				5.	Interface Gaging MAX CONTACT DEPTH = 0.006 "	5.	Interface Gaging MAX CONTACT DEPTH = 0.006 "

(1) Cable Retention = Other

Apply 5 pounds (6.8kg) for Cable Retention test.
MIL-PRF-39012, Paragraph 4.6.21

(2) Cable Retention = Other

Pull-to-destruct.
MIL-PRF-39012, Paragraph 4.6.21

(3) LLCR = Other

Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max
MIL-PRF-39012, Paragraph 4.6.13 except current to be 100mA nominal and voltage to be 20 mV maximum.**Center Contact Retention***Note: Testing to be done on uncabled assembly*

Group 1 PRF00-J-C-EE-047-A-SD		Group 2 PRF00-J-C-EE-047-A-RD-1	
4 Assemblies Custom Group		4 Assemblies Custom Group	
Step	Description	Step	Description
1.	Interface Gaging Max Contact Depth = 0.006 "	1.	Interface Gaging Max Contact Depth = 0.006 "
2.	Contact Retention Min Retention Force = 2.0 lbs <i>Note: apply force axially from interface side of SMP connector</i>	2.	Contact Retention Min Retention Force = 2.0 lbs <i>Note: apply force axially from interface side of SMP connector</i>
3.	Interface Gaging Min Contact Depth = 0.000 "	3.	Interface Gaging Min Contact Depth = 0.000 "

FLOWCHARTS Continued**Mating/Unmating/Durability**Group 1

RF047-A-00SJ-505050-0152
SMP-PF-P-GF-ST-TH2
4 Assemblies

Step	Description
1.	Interface Gaging MAX CONTACT DEPTH = 0.006 "
2.	LLCR (1) - Non Standard <i>Note: initial LLCR measurement before mating cycles. Signal and ground</i>
3.	Mating/Unmating Force (3) - Non Standard engagement force = 68 N disengagement force = 22 N <i>Note: record engagement force (68 N max) and disengagement force (22 N min)</i>
4.	Cycles Quantity = 100 Cycles <i>Note: mate and unmate parts by hand or using mechanical means. MIL-PRF-39012, Paragraph 4.6.12</i>
5.	LLCR (1) - Non Standard Max Delta = 15 mOhm
6.	Mating/Unmating Force (3) - Non Standard engagement force = 68 N disengagement force = 22 N <i>Note: record engagement force (68 N max) and disengagement force (22 N min)</i>
7.	Interface Gaging MAX CONTACT DEPTH = 0.006 "

Group 2

RF047-A-00MJ-505050-0152
SMP-PF-P-GF-ST-TH2
4 Assemblies

Step	Description
1.	Interface Gaging MAX CONTACT DEPTH = 0.006 "
2.	LLCR (1) - Non Standard <i>Note: initial LLCR measurement before mating cycles. Signal and ground</i>
3.	Mating/Unmating Force (2) - Non Standard engagement force = 68 N disengagement force = 22 N <i>Note: record engagement fore (68 N max) and disengagement force (22 N min)</i>
4.	Cycles Quantity = 100 Cycles <i>Note: mate and unmate parts by hand or using mechanical means. MIL-PRF-39012, Paragraph 4.6.12</i>
5.	LLCR (1) - Non Standard Max Delta = 15 mOhm
6.	Mating/Unmating Force (2) - Non Standard engagement force = 68 N disengagement force = 22 N <i>Note: record engagement fore (68 N max) and disengagement force (22 N min)</i>
7.	Interface Gaging MAX CONTACT DEPTH = 0.006 "

(1) LLCR = Other

Open Circuit Voltage = 20 mV Max

Test Current = 100 mA Max

MIL-PRF-39012, Paragraph 4.6.13 except current to be 100mA nominal and voltage to be 20 mV maximum.

(2) Mating/Unmating Force = Other
per DSCC 94008

(3) Mating/Unmating Force = Other
per DSCC 94008 drawing

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Part description: RF047/SMP	

FLOWCHARTS Continued

Cap Retention

Group 1

PRF00-J-C-EE-047-A-RD-1

10 Assemblies

Custom Group

Step	Description
1.	Push End Cap <i>Note: Push until the end cap comes out of the shell and record the value of force required to remove it</i>

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

- 1) MIL-PRF-39012, *Paragraph. 4.6.17 per MIL-STD-202-107*
- 2) Test Condition: I (-65°C to +125°C)
- 3) Test Time: ½ hour dwell at each temperature extreme
- 4) Test Duration: Test condition B except 10 cycles instead of 5.
- 5) All test samples are pre-conditioned at ambient.
- 6) 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 +1000 mOhms: -----Unstable
 - f. >+1000 mOhms:-----Open Failure

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

INSULATION RESISTANCE (IR):

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

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

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

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

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

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

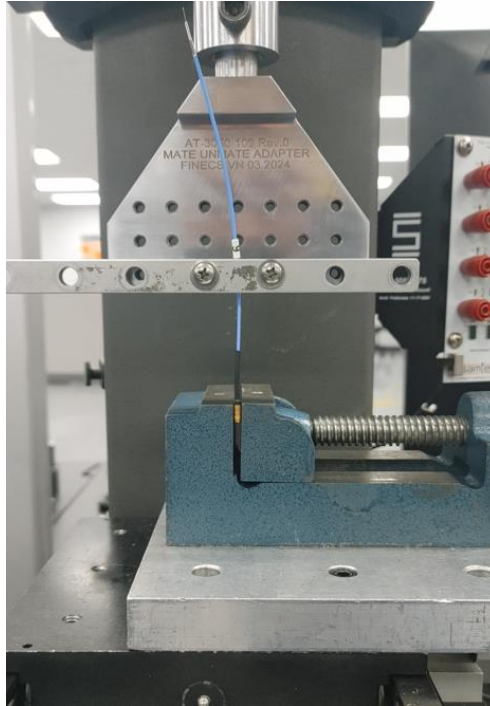


Fig. 1

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

RESULTS**Mating/Unmating Durability Group****SJ**

- **Initial**
 - **Mating**
 - **Min**-----4.03 Lbs
 - **Max**-----5.43 Lbs
 - **Unmating**
 - **Min**-----8.08 Lbs
 - **Max**-----10.85 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min**-----3.83 Lbs
 - **Max**-----6.69 Lbs
 - **Unmating**
 - **Min**-----8.73 Lbs
 - **Max**-----9.35 Lbs

MJ

- **Initial**
 - **Mating**
 - **Min**-----4.54 Lbs
 - **Max**-----6.05 Lbs
 - **Unmating**
 - **Min**-----10.09 Lbs
 - **Max**-----12.66 Lbs
- **After 100 Cycles**
 - **Mating**
 - **Min**-----3.30 Lbs
 - **Max**-----5.76 Lbs
 - **Unmating**
 - **Min**-----9.32 Lbs
 - **Max**-----11.86 Lbs

Cable Pull force

- **0° Pull**
 - SJ**
 - **Min**-----46.57 lbs
 - **Max**-----47.12 lbs
 - MJ**
 - **Min**-----36.85 lbs
 - **Max**-----48.37 lbs

Cap Retention Test

- **Min**-----5.22 lbs
- **Max**-----6.79 lbs

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RESULTS Continued

Insulation Resistance minimums, IR

SJ

Pin to Ground

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

MJ

Pin to Ground

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

Dielectric Withstanding Voltage minimums, DWV

SJ

- **Minimums**
 - Test Voltage-----500 VAC

Pin to Ground

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

MJ

- **Minimums**
 - Test Voltage-----500 VAC

Pin to Ground

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

RESULTS Continued**Interface Gaging****Mating/Unmating Durability Group****SJ****Initial**

- Min-----0.00102 Inch (0.026 mm)
- Max-----0.00153 Inch (0.039 mm)

After 100 cycles

- Min-----0.00204 Inch (0.052 mm)
- Max-----0.00304 Inch (0.077 mm)

MJ**Initial**

- Min-----0.00153 Inch (0.039 mm)
- Max-----0.00196 Inch (0.050 mm)

After 100 cycles

- Min-----0.00168 Inch (0.043 mm)
- Max-----0.00207 Inch (0.053 mm)

IR/DWV Group**SJ****Initial**

- Min-----0.00108 Inch (0.027 mm)
- Max-----0.00149 Inch (0.038 mm)

After Thermal shock

- Min-----0.00171 Inch (0.043 mm)
- Max-----0.00254 Inch (0.065 mm)

MJ**Initial**

- Min-----0.00146 Inch (0.037 mm)
- Max-----0.00200 Inch (0.051 mm)

After Thermal shock

- Min-----0.00143 Inch (0.036 mm)
- Max-----0.00157 Inch (0.040 mm)

Cable Pull Group**SJ****Initial**

- Min-----0.00099 Inch (0.025 mm)
- Max-----0.00140 Inch (0.036 mm)

After Retention force

- Min-----0.00197 Inch (0.050 mm)
- Max-----0.00324 Inch (0.082 mm)

SP**Initial**

- Min-----0.00155 Inch (0.039 mm)
- Max-----0.00238 Inch (0.060 mm)

After Retention force

- Min-----0.00496 Inch (0.126 mm)
- Max-----0.00599 Inch (0.152 mm)

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RESULTS Continued

Center Contact Retention Group

PRF00-J-C-EE-047-A-SD

Initial

- **Min**----- 0.00276 Inch (0.070 mm)
- **Max**----- 0.00306 Inch (0.078 mm)

After Retention force

- **Min**----- 0.00403 Inch (0.102 mm)
- **Max**----- 0.00468 Inch (0.119 mm)

PRF00-J-C-EE-047-A-RD-1

Initial

- **Min**----- 0.00006 Inch (0.002 mm)
- **Max**----- 0.00148 Inch (0.038 mm)

After Retention force

- **Min**----- 0.00117 Inch (0.030 mm)
- **Max**----- 0.00146 Inch (0.037 mm)

RESULTS Continued**LLCR IR/DWV (4 signal and 4 ground LLCR test points)****SJ****Signal Pin**

- **Initial** ----- 82.53 mOhms Max
- **Thermal Shock**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

Ground Pin

- **Initial** ----- 16.64 mOhms Max
- **Thermal Shock**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

MJ**Signal Pin**

- **Initial** ----- 89.92 mOhms Max
- **Thermal Shock**
 - <= +5.0 mOhms ----- 3 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

Ground Pin

- **Initial** ----- 14.33 mOhms Max
- **Thermal Shock**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

RESULTS Continued**LLCR Cable Pull (4 signal and 4 ground LLCR test points)****SJ****Signal Pin**

- **Initial** ----- 70.76 mOhms Max
- **5 Ib Retention**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

Ground Pin

- **Initial** ----- 13.99 mOhms Max
- **5 Ib Retention**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

MJ**Signal Pin**

- **Initial** ----- 66.01 mOhms Max
- **5 Ib Retention**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

Ground Pin

- **Initial** ----- 13.82 mOhms Max
- **5 Ib Retention**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

RESULTS Continued**LLCR Durability (4 signal and 4 ground LLCR test points)****SJ****Signal Pin**

- **Initial** ----- 79.12 mOhms Max
- **Durability, 100 Cycles**
 - <= +5.0 mOhms ----- 2 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

Ground Pin

- **Initial** ----- 16.31 mOhms Max
- **Durability, 100 Cycles**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

MJ**Signal Pin**

- **Initial** ----- 57.84 mOhms Max
- **Durability, 100 Cycles**
 - <= +5.0 mOhms ----- 1 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 2 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

Ground Pin

- **Initial** ----- 8.47 mOhms Max
- **Durability, 100 Cycles**
 - <= +5.0 mOhms ----- 4 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 +1000 mOhms ----- 0 Points ----- Unstable
 - >+1000 mOhms ----- 0 Points ----- Open Failure

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Part description: RF047/SMP	

DATA SUMMARIES

Mating\Unmating Force: SJ

	Initial				100 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	17.93	4.03	35.94	8.08	16.99	3.82	38.83	8.73
Maximum	24.11	5.42	48.26	10.85	29.76	6.69	41.59	9.35
Average	21.04	4.73	40.57	9.12	24.93	5.61	40.23	9.05
St Dev	3.37	0.76	5.40	1.21	5.56	1.25	1.18	0.27
Count	4	4	4	4	4	4	4	4

MJ

	Initial				100 Cycles			
	Mating		Unmating		Mating		Unmating	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	20.19	4.54	44.88	10.09	14.68	3.30	41.46	9.32
Maximum	26.91	6.05	56.31	12.66	25.62	5.76	52.75	11.86
Average	23.17	5.21	52.48	11.80	19.76	4.44	48.87	10.99
St Dev	2.95	0.66	5.18	1.17	5.00	1.12	5.12	1.15
Count	4	4	4	4	4	4	4	4

Cable Pull Force: 0° Pull

SJ	Force (lbs)
Minimum	46.57
Maximum	47.12
Average	46.85

MJ	Force (lbs)
Minimum	36.85
Maximum	48.37
Average	42.61

Tracking Code: CR-1073620_Report_Rev_1	Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2
Part description: RF047/SMP	

DATA SUMMARIES

Cap Retention Test

	Force (lbs)
Minimum	5.22
Maximum	6.79
Average	5.98

INSULATION RESISTANCE (IR): SJ

	Pin to Ground
	Mated
Minimum	RF085/RF085
Initial	45000
Thermal Shock	45000

MJ

	Pin to Ground
	Mated
Minimum	RF085/RF085
Initial	45000
Thermal Shock	45000

DIELECTRIC WITHSTANDING VOLTAGE (DWV): SJ

Pin to Ground (500 VAC)	
Initial Test Voltage	Pass
After Thermal Shock Test Voltage	Pass

MJ

Pin to Ground (500 VAC)	
Initial Test Voltage	Pass
After Thermal Shock Test Voltage	Pass

DATA SUMMARIES Continued**INTERFACE GAGING**

IR/DWV Group

SJ

Interface Gaging (Group 1)(.006/.000)			
Sample	Initial	Ther Shck	Delta
1	0.00149	0.00210	0.00061
2	0.00108	0.00219	0.00111
3	0.00113	0.00254	0.00141
4	0.00108	0.00171	0.00063
Min	0.00108	0.00171	0.00061
Max	0.00149	0.00254	0.00141
Average	0.00120	0.00214	0.00094

MJ

Interface Gaging (Group 2)(.006/.000)			
Sample	Initial	Ther Shck	Delta
5	0.00177	0.00143	0.00034
6	0.00153	0.00148	0.00005
7	0.00200	0.00157	0.00043
8	0.00146	0.00152	-0.00006
Min	0.00146	0.00143	-0.00006
Max	0.00200	0.00157	0.00043
Average	0.00169	0.00150	0.00019

Mating\Unmating Durability

SJ

Interface Gaging (Group 1)(.006/.000)			
Sample	Initial	100 Cycles	Delta
37	0.00117	0.00260	0.00143
38	0.00153	0.00304	0.00151
39	0.00119	0.00210	0.00091
40	0.00102	0.00204	0.00102
Min	0.00102	0.00204	0.00091
Max	0.00153	0.00304	0.00151
Average	0.00123	0.00245	0.00122

MJ

Interface Gaging (Group 2)(.006/.000)			
Sample	Initial	100 Cycles	Delta
41	0.00153	0.00168	0.00015
42	0.00167	0.00178	0.00011
43	0.00167	0.00196	0.00029
44	0.00196	0.00207	0.00011
Min	0.00153	0.00168	0.00011
Max	0.00196	0.00207	0.00029
Average	0.00171	0.00187	0.00017

DATA SUMMARIES Continued**Cable Pull Group
SJ**

Interface Gaging (Group 3)(.006/.000)			
Sample	Initial	after 5lb retention	Delta
13	0.00099	0.00324	0.00225
14	0.00140	0.00301	0.00161
15	0.00131	0.00197	0.00066
16	0.00132	0.00234	0.00102
Min	0.00099	0.00197	0.00066
Max	0.00140	0.00324	0.00225
Average	0.00126	0.00264	0.00139

MJ

Interface Gaging (Group 4)(.006/.000)			
Sample	Initial	after 5lb retention	Delta
17	0.00205	0.00531	0.00326
18	0.00155	0.00599	0.00444
19	0.00238	0.00496	0.00258
20	0.00218	0.00559	0.00341
Min	0.00155	0.00496	0.00258
Max	0.00238	0.00599	0.00444
Average	0.00204	0.00546	0.00342

**Center Contact Retention
SJ**

Interface Gaging (Group 1)(.006/.000)			
Sample	Initial	after 2lb Retention	Delta
21	0.00276	0.00416	0.00140
22	0.00306	0.00468	0.00162
23	0.00290	0.00403	0.00113
24	0.00276	0.00424	0.00148
Min	0.00276	0.00403	0.00113
Max	0.00306	0.00468	0.00162
Average	0.00287	0.00428	0.00141

MJ

Interface Gaging (Group 2)(.006/.000)			
Sample	Initial	after 2lb Retention	Delta
25	0.00103	0.00117	0.00014
26	0.00148	0.00146	0.00002
27	0.00006	0.00128	0.00122
28	0.00145	0.00129	0.00016
Min	0.00006	0.00117	0.00002
Max	0.00148	0.00146	0.00122
Average	0.00101	0.00130	0.00038

Tracking Code: CR-1073620_Report_Rev_1	Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2
Part description: RF047/SMP	

DATA SUMMARIES Continued

LLCR Durability:

- 1) A total of 4 signal and 4 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 $+1000$ mOhms: -----Unstable
 - f. $>+1000$ mOhms: -----Open Failure

SJ

LLCR Measurement Summaries by Pin Type			
Date	5/20/2024	5/20/2024	
Room Temp (Deg C)	22	22	
Rel Humidity (%)	51	51	
Technician	Tony Wagoner	Tony Wagoner	
mOhm values	Actual	Actual	
	Initial	100 Cycles	
Pin Type: Signal 1			
Average	75.66	4.81	
St. Dev.	2.91	3.24	
Min	72.25	0.71	
Max	79.22	8.01	
Summary Count	4	4	
Total Count	4	4	
Pin Type: GND 1			
Average	14.07	0.265	
St. Dev.	1.51	0.34	
Min	13.08	0.02	
Max	16.31	0.76	
Summary Count	4	4	
Total Count	4	4	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	≤ 5	>5 & ≤ 10	>10 & ≤ 15	>15 & ≤ 50	>50 & ≤ 1000	>1000
100 Cycles	6	2	0	0	0	0

DATA SUMMARIES Continued

MJ

LLCR Measurement Summaries by Pin Type			
Date	5/20/2024	6/8/2024	
Room Temp (Deg C)	22	22	
Rel Humidity (%)	51	52	
Technician	Tony Wagoner	Tony Wagoner	
mOhm values	Actual	Actual	
	Initial	100 Cylces	
Pin Type: Signal 1			
Average	74.01	8.16	
St. Dev.	3.26	4.05	
Min	70.33	3.86	
Max	76.96	13.63	
Summary Count	4	4	
Total Count	4	4	
Pin Type: GND 1			
Average	12.39	1.01	
St. Dev.	0.18	0.54	
Min	12.15	0.2	
Max	12.58	1.33	
Summary Count	4	4	
Total Count	4	4	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	<=5	>5 & <=10	>10 & <=15	>15 & <=50	>50 & <=1000	>1000
100 Cylces	5	2	1	0	0	0

Tracking Code: CR-1073620_Report_Rev_1	Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2
Part description: RF047/SMP	

DATA SUMMARIES Continued

LLCR IR/DWV:

- 1) A total of 4 signal and 4 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 $+1000$ mOhms: -----Unstable
 - f. $>+1000$ mOhms:-----Open Failure

SJ

LLCR Measurement Summaries by Pin Type			
Date	5/18/2024	5/20/2024	
Room Temp (Deg C)	22	22	
Rel Humidity (%)	55	51	
Technician	Tony Wagoner	Tony Wagoner	
mOhm values	Actual	Delta	
	Initial	Thermal Shock	
Pin Type: Signal 1			
Average	81.49	1.07	
St. Dev.	1.32	1.2	
Min	79.78	0.26	
Max	82.53	2.86	
Summary Count	4	4	
Total Count	4	4	
Pin Type: GND 1			
Average	12.87	2.66	
St. Dev.	1.21	0.95	
Min	12.08	1.91	
Max	14.64	4.02	
Summary Count	4	4	
Total Count	4	4	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	≤ 5	$>5 \text{ \& } \leq 10$	$>10 \text{ \& } \leq 15$	$>15 \text{ \& } \leq 50$	$>50 \text{ \& } \leq 1000$	>1000
Thermal Shock	8	0	0	0	0	0

DATA SUMMARIES Continued

MJ

LLCR Measurement Summaries by Pin Type			
Date	5/18/2024	5/20/2024	
Room Temp (Deg C)	22	22	
Rel Humidity (%)	55	51	
Technician	Tony Wagoner	Tony Wagoner	
mOhm values	Actual	Delta	
	Initial	Thermal Shock	
Pin Type: Signal 1			
Average	85.64	3.2	
St. Dev.	3.28	1.68	
Min	82.21	1.66	
Max	89.92	5.57	
Summary Count	4	4	
Total Count	4	4	
Pin Type: GND 1			
Average	13.38	3.19	
St. Dev.	0.79	0.62	
Min	12.59	2.53	
Max	14.33	3.9	
Summary Count	4	4	
Total Count	4	4	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	<=5	>5 & <=10	>10 & <=15	>15 & <=50	>50 & <=1000	>1000
Thermal Shock	7	1	0	0	0	0

Tracking Code: CR-1073620_Report_Rev_1	Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2
Part description: RF047/SMP	

DATA SUMMARIES Continued

LLCR Cable Pull:

- 1) A total of 4 signal and 4 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 $+1000$ mOhms: -----Unstable
 - f. $>+1000$ mOhms: -----Open Failure

SJ

LLCR Measurement Summaries by Pin Type			
Date	5/18/2024	5/20/2024	
Room Temp (Deg C)	22	22	
Rel Humidity (%)	55	51	
Technician	Tony Wagoner	Tony Wagoner	
mOhm values	Actual	Delta	
	Initial	Cable Retention	
Pin Type: Signal 1			
Average	68.99	1.64	
St. Dev.	2.02	0.81	
Min	66.97	0.58	
Max	70.76	2.54	
Summary Count	4	4	
Total Count	4	4	
Pin Type: GND 1			
Average	13.43	0.45	
St. Dev.	0.55	0.5	
Min	12.8	0.01	
Max	13.99	1.15	
Summary Count	4	4	
Total Count	4	4	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	≤ 5	>5 & ≤ 10	>10 & ≤ 15	>15 & ≤ 50	>50 & ≤ 1000	>1000
Cable Retention	8	0	0	0	0	0

DATA SUMMARIES Continued

MJ

LLCR Measurement Summaries by Pin Type			
Date	5/18/2024	5/20/2024	
Room Temp (Deg C)	22	22	
Rel Humidity (%)	55	51	
Technician	Tony Wagoner	Tony Wagoner	
mOhm values	Actual	Delta	
	Initial	Cable Retention	
Pin Type: Signal 1			
Average	65.12	1.52	
St. Dev.	1.01	1.02	
Min	64	0.38	
Max	66.01	2.71	
Summary Count	4	4	
Total Count	4	4	
Pin Type: GND 1			
Average	13.23	0.63	
St. Dev.	0.55	0.37	
Min	12.6	0.39	
Max	13.82	1.18	
Summary Count	4	4	
Total Count	4	4	

LLCR Delta Count by Category						
	Stable	Minor	Acceptable	Marginal	Unstable	Open
mOhms	<=5	>5 & <=10	>10 & <=15	>15 & <=50	>50 & <=1000	>1000
Cable Retention	8	0	0	0	0	0

Tracking Code: CR-1073620_Report_Rev_1	Part #: RF047-A-00SJ-505050-0152/ SMP-PF-P-GF-ST-TH2
Part description: RF047/SMP	

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: TCT-04

Description: Dillon Quantrol TC21 25-1000 mm/min series test stand

Manufacturer: Dillon Quantrol

Model: TC2 I series test stand

Serial #: 04-1041-04

Accuracy: Speed Accuracy: +/- 5% of indicated speed; Speed Accuracy: +/- 5% of indicated speed;
... Last Cal: 05/29/2020, Next Cal: 05/29/2021

Equipment #: MO-11

Description: Switch/Multimeter

Manufacturer: Keithley

Model: 3706

Serial #: 120169

Accuracy: See Manual

... Last Cal: 09/11/2019, Next Cal: 09/11/2020

Equipment #: TSC-01

Description: Vertical Thermal Shock Chamber

Manufacturer: Cincinnati Sub Zero

Model: VTS-3-6-6-SC/AC

Serial #: 10-VT14993

Accuracy: See Manual

... Last Cal: 06/30/2019, Next Cal: 06/30/2020

Equipment #: HPT-01

Description: Hipot Safety Tester

Manufacturer: Vitrek

Model: V73

Serial #: 019808

Accuracy:

... Last Cal: 05/15/2020, Next Cal: 05/15/2021