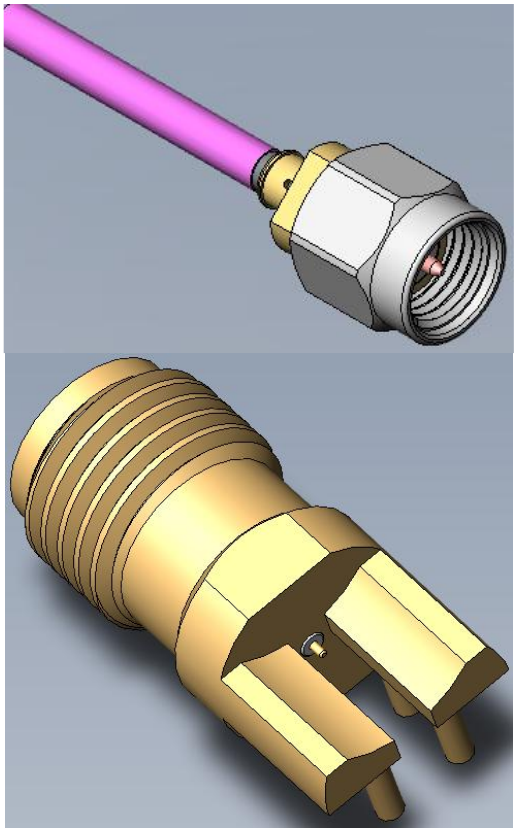
| | |
|---|---|
| Project Number: Design Qualification Test Report | Tracking Code: CR-1182301_Report_Rev_1 |
| Requested by: Brian Luallen | Date: 8/21/2025 |
| Part #: SMA-J-P-HG-ST-EM-01\RF23C-01SP-505050-0153 | |
| Part description: SMA\RF23C | Tech: Tony Wagoner, Daniel Haydon |
| Test Start: 5/14/2025 | Test Completed: 8/5/2025 |



# DESIGN QUALIFICATION TEST REPORT

## SMA/RF23C
## SMA-J-P-HG-ST-EM-01\RF23C-01SP-505050-0153

## REVISION HISTORY

| DATA | REV.NUM. | DESCRIPTION | ENG |
|---|---|---|---|
| **8/21/2025** | **1** | **Initial Issue** | **KH** |

## 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.

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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-113436-TST, PCB-113439-TST.

# FLOWCHARTS

## Mating/Unmating/Durability

*Note: LLCR to check signal and ground.*

*Note: Torque mated set to 3-5 in-lbs.*

*Note: During cycling, hold both connector and cable assembly stationary, rotating only the coupling nut on the cable assembly.*

Group 1

SMA-J-P-HG-ST-EM-01

RF23C-01SP-505050-0153

10 Assemblies

MUD

*Note: Perform Contact Gaps and Cycles on 2 assemblies. Run steps 5-7 on all 10 assemblies.*

| Step | Description |
| --- | --- |
| 1. | Contact Gaps<br>*Note: Measure initial contact recess from interface reference plane* |
| 2. | LLCR (1) |
| 3. | Cycles<br>Quantity = 500 Cycles |
| 4. | Contact Gaps<br>*Note: Remeasure contact recess from Interface Reference plane and record. See production drawing for requirement.* |
| 5. | LLCR (1)<br>Max Delta = 15 mOhm |
| 6. | Thermal Shock (2) |
| 7. | LLCR (1)<br>Max Delta = 15 mOhm |

(1) LLCR = EIA-364-23
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max

(2) Thermal Shock = EIA-364-32
Exposure Time at Temperature Extremes = 1/2 Hour
Method A, Test Condition = I (-55°C to +85°C)
Test Duration = A-3 (100 Cycles)

## FLOWCHARTS Continued

### IR/DWV

*Note: 5000 megaohms min IR*
*Torque mated set to 5 in-lbs.*

***Pin-to-Ground***

Group 1
SMA-J-P-HG-ST-EM-01
RF23C-01SP-505050-0153
8 Assemblies

| Step | Description |
| --- | --- |
| 1. | IR (2) |
| 2. | DWV at Test Voltage(1)<br>Test Voltage = 500 V |
| 3. | Thermal Shock (3) |
| 4. | IR (2) |
| 5. | DWV at Test Voltage(1)<br>Test Voltage = 500 V |

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

(3) Thermal Shock = EIA-364-32
Exposure Time at Temperature Extremes = 1/2 Hour
Method A, Test Condition = I (-55°C to +85°C)
Test Duration = A-3 (100 Cycles)

## FLOWCHARTS Continued

## Mechanical Shock/Random Vibration/LLCR

*Note: LLCR to check signal and ground.*

*Note: Torque mated set to 5 in-lbs.*

Group 1
SMA-J-P-HG-ST-EM-01
RF23C-01SP-505050-0153
8 Assemblies

| Step | Description |
| --- | --- |
| 1. | LLCR (1) |
| 2. | Mechanical Shock (2) |
| 3. | Random Vibration (3) |
| 4. | LLCR (1)<br>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 Detection

*Note: Event detection to include signal and ground.*

*Note: Torque mated set to 5 in-lbs.*

Group 1
SMA-J-P-HG-ST-EM-01
RF23C-01SP-505050-0153
8 Assemblies

| 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

## Center Contact Axial Retention

*Note: Clamp on Body to stabilize. Apply axial force first in one direction and then the other, to the center contact of an assembled and un-cabled connector utilizing a method and force measuring device. The inner contact shall be inspected after the force has been applied in one direction and again after the force has been applied in the opposite direction to determine if the contact has been displaced from the specified interface dimensions.*

Group 1

SMA-J-P-HG-ST-EM-01

5 Assemblies

Contact Retention

*Note: Measure Initial contact recess from Interface Reference Plane. Apply a minimum Axial force of 4.0 Lb. (17.8 N).*

| Step | Description |
|---|---|
| 1. | Force Resistance<br>*Note: Measure Initial contact recess from Interface Reference Plane. Apply a minimum Axial force of 4.0 Lb. (17.8 N) and remeasure contact recess.* |

Group 2

SMA-J-P-HG-ST-EM-01

5 Assemblies

Max Center Contact Retention

*Note: Reuse samples from Group 1. Gradually apply an Axial force pushing on the contact opposite of Interface until contact becomes disengaged from assembly. Record force.*

| Step | Description |
|---|---|
| 1. | Push To Failure<br>*Note: Push to failure. Record max axial force* |

## Dielectric Insulator Axial Retention

*Note: Measure Initial contact recess from Interface Reference Plane. Apply a minimum Axial force of 6.0 Lb. (26.7 N).*

Group 1

SMA-J-P-HG-ST-EM-01

5 Assemblies

Max Insulator Retention

*Note: Gradually apply an Axial force pushing on the Insulator opposite of the Interface until the Insulator becomes disengaged from assembly. Record force.*

| Step | Description |
|---|---|
| 1. | Push To Failure<br>*Note: Push to failure. Record max axial force* |

## 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 I: -55°C to +85°C.
3) Test Time: ½ hour dwell at each temperature extreme.
4) Number of Cycles: 100
5) All test samples are pre-conditioned at ambient.
6) All test samples are exposed to environmental stress in mated conditions.

### MECHANICAL SHOCK (Specified Pulse):

1) Reference document: EIA-364-27, *Mechanical Shock Test Procedure for Electrical Connectors*
2) Test Condition C
3) Peak Value: 100 G
4) Duration: 6 Milliseconds
5) Wave Form: Half Sine
6) Velocity: 12.3 ft/s
7) Number of Shocks: 3 Shocks / Direction, 3 Axis (18 Total)

### VIBRATION:

1) Reference document: EIA-364-28, *Vibration Test Procedure for Electrical Connectors*
2) Test Condition V, Letter B
3) Power Spectral Density: 0.04 $G^2$ / 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 testing, 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.

### 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 of stress.
    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

### 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.

### Center Contact Axial Retention:

Record the necessary force to push on the contact opposite of the interface until contact becomes disengaged from assembly.

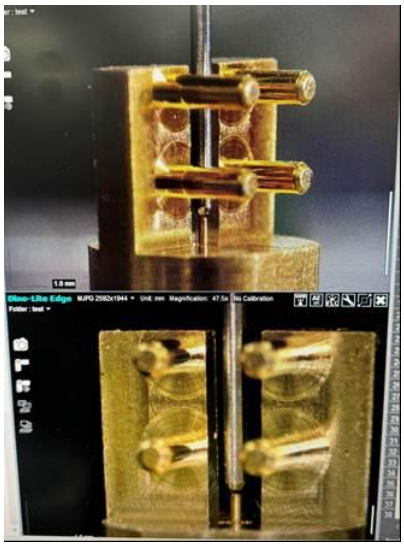

Fig. 1

### Dielectric Insulator Axial Retention:

Record the necessary force to push on the insulator opposite of the interface until the insulator becomes disengaged from assembly.

# RESULTS

## Insulation Resistance minimums, IR

### 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**

## Dielectric Withstanding Voltage minimums, DWV

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

### Pin to Ground

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

## RESULTS Continued

### LLCR Mate/Unmate Durability (10 signal and 10 ground LLCR test points)

**Signal pin:**

- **Initial ---------- 25.09 mOhms Max**
- **Durability 500 cycles**
  - **<= +5.0 mOhms ---------- 10 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 10 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 ---------- 12.48 mOhms Max**
- **Durability 500 cycles**
  - **<= +5.0 mOhms ---------- 10 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**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 10 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 Shock & Vibration (8 signal and 8 ground LLCR test points)

**Signal Pin:**

- **Initial ---------- 15.07 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms----------8 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms----------0 Points ---------- Unstable**
  - **>+1000 mOhms----------0 Points ---------- Open Failure**

**Ground Pin:**

- **Initial ----------6.73 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms----------8 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ----------0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ----------0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ----------0 Points ---------- Marginal**
  - **+50.1 to +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**

## RESULTS Continued

### Center Contact Axial Retention:

**Group 1**

**Contact Recess:**

**Initial**

**Min---------- -0.00530 inch**

**Max---------- -0.00495 inch**

**After Retention 4.0 Lbs**

**Min---------- -0.00530 inch**

**Max---------- -0.00495 inch**

**Group 2**

**Push Force**

**Min----------4.30 Lbs**

**Max----------4.54 Lbs**

### Dielectric Insulator Axial Retention:

**Insulator Axial Retention Force**

**Min----------9.48 Lbs**

**Max----------9.99 Lbs**

## DATA SUMMARIES

### INSULATION RESISTANCE (IR):

| | Pin to Ground | | |
|---|---|---|---|
| | Mated | Unmated | Unmated |
| Minimum | **SMA\RF23C** | **SMA** | **RF23C** |
| **Initial** | 45000 | 45000 | 45000 |
| **Thermal** | 45000 | 45000 | 45000 |

### DIELECTRIC WITHSTANDING VOLTAGE (DWV):

| Voltage Rating Summary | |
|---|---|
| **Minimum** | **SMA\RF23C** |
| **Test Voltage** | 500 |

| Pin to Ground | |
|---|---|
| **Initial Test Voltage** | Passed |
| **After Thermal Test Voltage** | Passed |

## DATA SUMMARIES Continued

### LLCR Mate/Unmate Durability:

1) A total of 10 signals and 10 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. <= +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 | 2025/5/14 | 2025/7/31 | 2025/8/5 |
| Room Temp (Deg C) | 22 | 22 | 22 |
| Rel Humidity (%) | 52 | 56 | 55 |
| Technician | Tony Wagoner | Tony Wagoner | Tony Wagoner |
| **mOhm values** | Actual **Initial** | **Delta 500 Cycles** | **Delta Thermal Shock** |
| | **Pin Type: Signal 1** | | |
| Average | 23.96 | 0.25 | 0.73 |
| St. Dev. | 1.01 | 0.73 | 1.35 |
| Min | 22.18 | 0 | 0.01 |
| Max | 25.09 | 2.33 | 4.41 |
| Summary Count | 10 | 10 | 10 |
| Total Count | 10 | 10 | 10 |
| | **Pin Type: GND 1** | | |
| Average | 10.7 | 0.3 | 2.59 |
| St. Dev. | 0.81 | 0.63 | 0.5 |
| Min | 9.46 | 0 | 1.94 |
| Max | 12.48 | 1.73 | 3.59 |
| Summary Count | 10 | 10 | 10 |
| Total Count | 10 | 10 | 10 |

| LLCR Delta Count by Category | | | | | | |
|---|---|---|---|---|---|---|
| | **Stable** | **Minor** | **Acceptable** | **Marginal** | **Unstable** | **Open** |
| **mOhms** | **<=5** | **>5 & <=10** | **>10 & <=15** | **>15 & <=50** | **>50 & <=1000** | **>1000** |
| **500 Cycles** | **20** | **0** | **0** | **0** | **0** | **0** |
| **Thermal Shock** | **20** | **0** | **0** | **0** | **0** | **0** |

## DATA SUMMARIES Continued

### LLCR Shock & Vibration:

1). A total of 8 signals and 8 ground 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. <= +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 | 2025/2/19 | 2025/2/20 |
| Room Temp (Deg C) | 21 | 22 |
| Rel Humidity (%) | 37 | 34 |
| Technician | Daniel Haydon | Daniel Haydon |
| **mOhm values** | Actual **Initial** | **Delta Shock-Vib** |
| **Pin Type: Signal 1** | | |
| Average | 14.75 | 0.15 |
| St. Dev. | 0.21 | 0.11 |
| Min | 14.39 | 0.05 |
| Max | 15.07 | 0.37 |
| Summary Count | 8 | 8 |
| Total Count | 8 | 8 |
| **Pin Type: GND 1** | | |
| Average | 5.81 | 0.19 |
| St. Dev. | 0.61 | 0.27 |
| Min | 5.13 | 0.01 |
| Max | 6.73 | 0.83 |
| Summary Count | 8 | 8 |
| Total Count | 8 | 8 |

| LLCR Delta Count by Category | | | | | | |
|---|---|---|---|---|---|---|
| | **Stable** | **Minor** | **Acceptable** | **Marginal** | **Unstable** | **Open** |
| **mOhms** | **<=5** | **>5 & <=10** | **>10 & <=15** | **>15 & <=50** | **>50 & <=1000** | **>1000** |
| **Shock-Vib** | **16** | **0** | **0** | **0** | **0** | **0** |

### Nanosecond Event Detection:

| Shock and Vibration Event Detection Summary | |
|---|---|
| Contacts tested | 16 |
| 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 |

## DATA SUMMARIES Continued

### Center Contact Axial Retention:

**Group 1**

**Contact Recess:**

**Initial**

| *Parameter* | Contact Recess |
|---|---|
| *Nominal* | -0.008 |
| *Hi Limit* | |
| *Lo Limit* | |
| *Min* | -0.00530 |
| *Max* | -0.00495 |
| *Avg* | -0.00513 |
| *St. Dev.* | 0.00013 |
| *Count* | 5 |

**After Retention 4.0 Lb**

| *Parameter* | Contact Recess |
|---|---|
| *Nominal* | -0.008 |
| *Hi Limit* | |
| *Lo Limit* | |
| *Min* | -0.00530 |
| *Max* | -0.00495 |
| *Avg* | -0.00516 |
| *St. Dev.* | 0.00014 |
| *Count* | 5 |

**Group 2**

**Push Force:**

| | Push Force | |
|---|---|---|
| | Newtons | Force (Lbs) |
| Minimum | 19.11 | 4.30 |
| Maximum | 20.18 | 4.54 |
| **Average** | **19.52** | **4.39** |
| St Dev | 0.50 | 0.11 |
| Count | 5 | 5 |

### Dielectric Insulator Axial Retention:

**Insulator Axial Retention Force:**

| | Push Force | |
|---|---|---|
| | Newtons | Force (Lbs) |
| Minimum | 42.15 | 9.48 |
| Maximum | 44.43 | 9.99 |
| **Average** | **43.55** | **9.79** |
| St Dev | 0.99 | 0.22 |
| Count | 5 | 5 |

## 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: 05/29/2025, Next Cal: 05/29/2026

**Equipment #:** MO-11
**Description:** Switch/Multimeter
**Manufacturer:** Keithley
**Model:** 3706
**Serial #:** 120169
**Accuracy:** See Manual
… Last Cal: 09/11/2024, Next Cal: 09/11/2025

**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: 06/30/2025, Next Cal: 06/30/2026

**Equipment #:** HPT-01
**Description:** Hipot Safety Tester
**Manufacturer:** Vitrek
**Model:** V73
**Serial #:** 019808
**Accuracy:**
… Last Cal: 05/15/2025, Next Cal: 05/15/2026

**Equipment #:** SVC-01
**Description:** Shock & Vibration Table
**Manufacturer:** Data Physics
**Model:** LE-DSA-10-20K
**Serial #:** 10037
**Accuracy:** See Manual
… Last Cal: 04/22/2025, Next Cal: 04/22/2026

**Equipment #:** ACLM-01
**Description:** Accelerometer
**Manufacturer:** PCB Piezotronics
**Model:** 52C03
**Serial #:** 115819
**Accuracy:** See Manual
… Last Cal: 07/18/2025, Next Cal: 07/18/2026

## EQUIPMENT AND CALIBRATION SCHEDULES

**Equipment #:** ED-03
**Description:** Event Detector
**Manufacturer:** Analysis Tech
**Model:** 32EHD
**Serial #:** 1100604
**Accuracy:** See Manual
… Last Cal: 10/31/2024, Next Cal: 10/31/2025