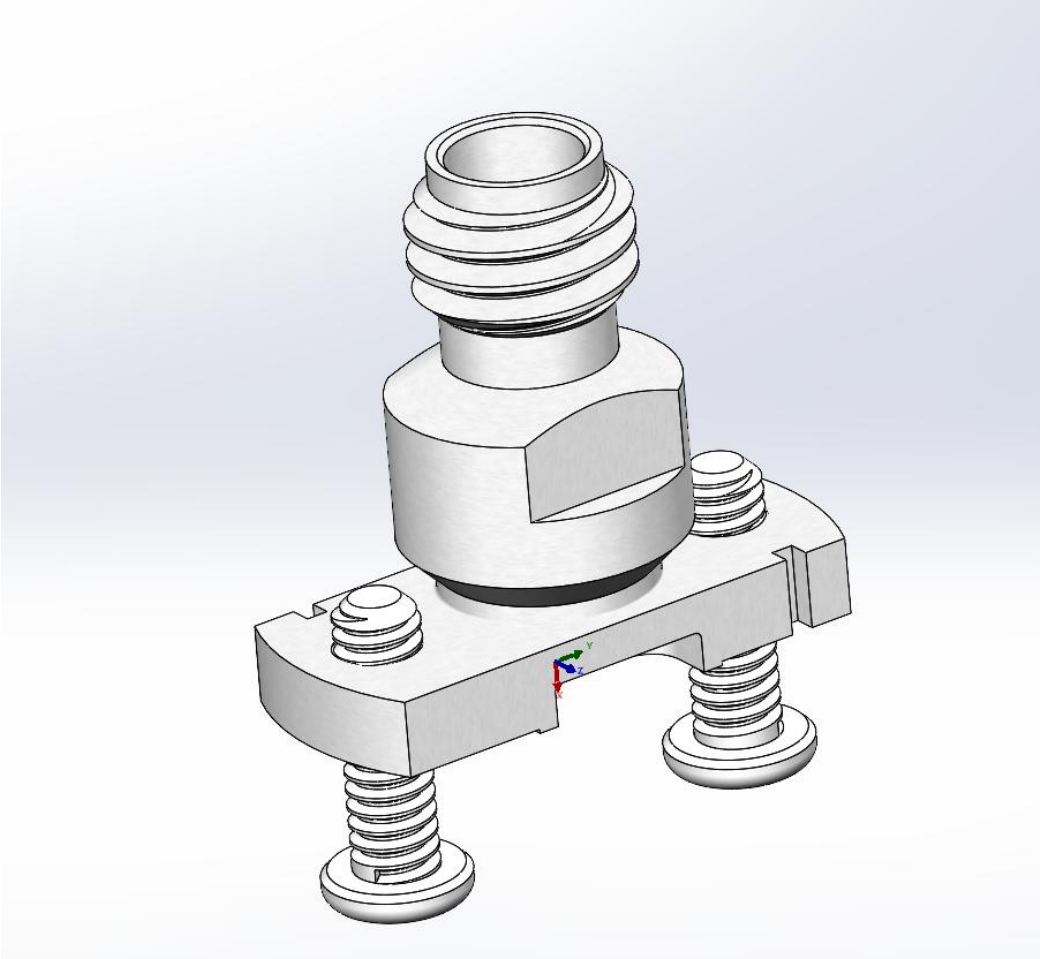
Project Number: Design Qualification Test Report	Tracking Code: CR-1425602_Report_Rev_1
Requested by: Joe Hung	Date: 5/25/2026
Part #: 100-J-P-VP-ST-CMM-1	
Part description: 1.0mm Jack, Vertical Compression Mount Microstrip	Tech: Zack Wang/ Kane Wu
Test Start: 04/23/2026	Test Completed: 05/11/2026



DESIGN QUALIFICATION TEST REPORT

100-J-P-VP-ST-CMM-1

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
05/18/2026	**1**	**Initial Issue**	**KW**

CERTIFICATION

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

SCOPE

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

APPLICABLE DOCUMENTS

Standards: MIL-PRF-39012, MIL-STD-202-301, MIL-STD-202-302, MIL-STD-202-107, 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-111204-TST-01A, 111204-TST-01B

FLOWCHARTS

Samtec Test Plan 5658, Rev. 1

Part # Being Tested: 100-J-P-VP-ST-CMM-1
Mating Part #: LL110-10SP-505050-0305
Solder Type: No Soldering
Reason for Test: New Product Qual

REVISION HISTORY

Revision	Engineer's Name	Date
0	Eric Olsen	3/19/2025
1	Joe Huang	2/24/2026

Notes

Rev.1 : Update typo of part number

FLOWCHARTS Continued

IR/DWV

Pin-to-Ground

Group 1

100-J-P-VP-ST-CMM-1

LL110-10SP-505050-0305

5 Assemblies

Step	Description
1.	IR (2) - Non Standard *Note: Connectors without cables (when applicable) shall be tested in accordance with method 302, test condition B, MIL-STD-202. Measure between the center contact and body.*
2.	DWV at Test Voltage (1) - Non Standard Test Voltage = 500 VAC
3.	LLCR (3) - Non Standard Initial = 6.0 mOhm *Note: Signal and ground.*
4.	Thermal Shock (4) - Non Standard
5.	IR (2) - Non Standard *Note: Connectors without cables (when applicable) shall be tested in accordance with method 302, test condition B, MIL-STD-202. Measure between the center contact and body.*
6.	DWV at Test Voltage (1) - Non Standard Test Voltage = 500 VAC
7.	LLCR (3) - Non Standard Max Delta = 15 mOhm *Note: Signal and ground.*

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(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 = 500V DC, 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
Test Condition = I (-65°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

Mechanical Shock/Random Vibration/Event Detection

Group 1

100-J-P-VP-ST-CMM-1

LL110-10SP-505050-0305

5 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

Contact Captivation

Group 1

100-J-P-VP-ST-CMM-1

5 Assemblies

Custom Group

Step	Description
1.	Contact Captivation *Note: This is a distructive test.* *Apply force to the center socket contact until captivation failure, (push contact from flange side), record force.*

FLOWCHARTS Continued

Center Contact Retention

Minimum Force

Group 1

100-J-P-VP-ST-CMM-1

5 Assemblies

Measure Contact Recess @ Interface

Note: Test I.A.W. MIL-PRF-39012 par. 4.6.9.

Step	Description
1.	Conduct Test I.A.W. MIL-PRF-39012 Par. 4.6.9 Max applied force = 4.0 lbs *Note: Take Initial measurement of contact recess @ Interface and conduct test I.A.W. MIL-PRF-39012 par. 4.6.9*

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, *Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors.*
2) Test Condition I: -65°C to +125°C.
3) Test Time: ½ hour dwell at each temperature extreme.
4) Number of Cycles: 10
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

.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

LLCR:

1) MIL-PRF-39012, Paragraph 4.6.13, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
2) 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: MIL-PRF-39012, Paragraph 4.6.8 per MIL-STD-202-302, *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: MIL-PRF-39012, Paragraph. 4.6.14 per MIL-STD-202-301, *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.

Contact Captivation:

Apply force to the center socket contact until captivation failure occurs; record the force..

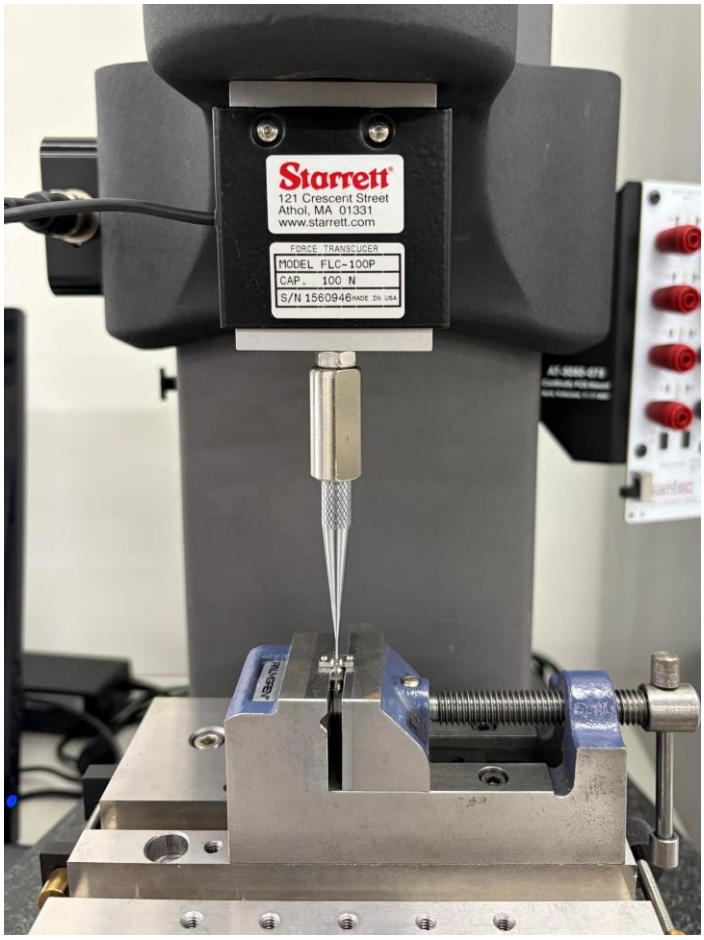

Fig. 1

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes.

Center Contact Retention:

Measure Contact Recess at Interface.

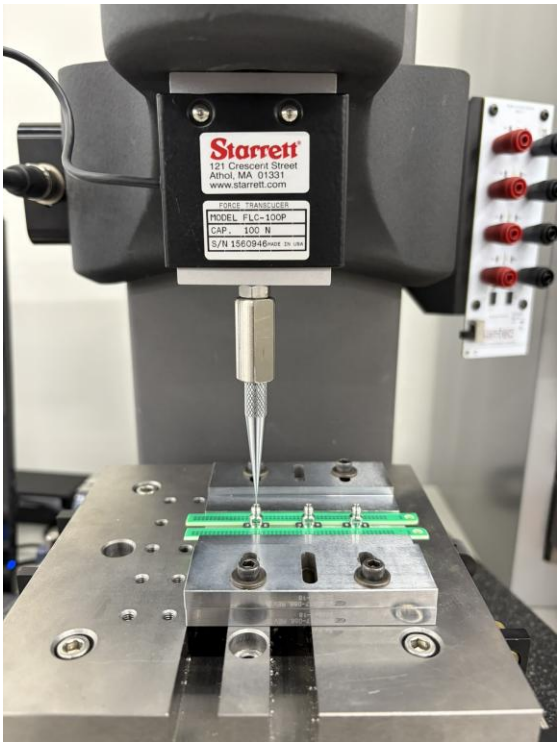

Fig. 2 Forward Direction

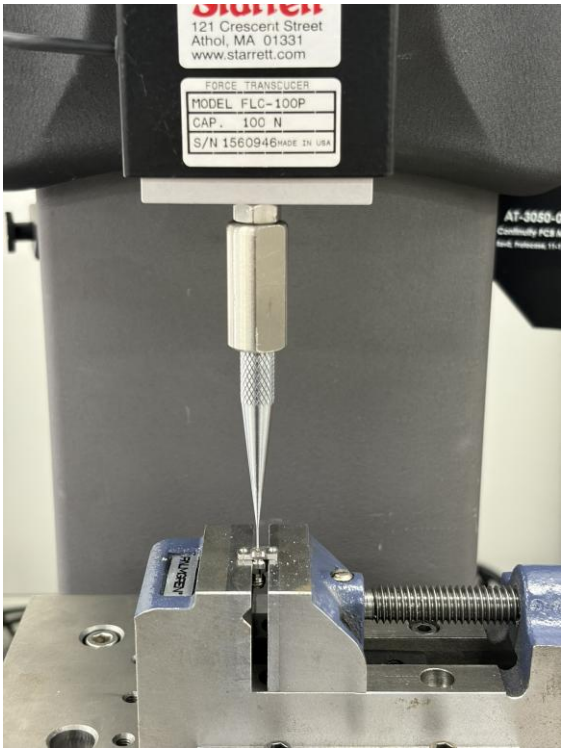

Fig. 3 Reverse Direction

RESULTS

IR/DWV:

-Insulation Resistance minimums, IR

Pin to Ground

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

-Dielectric Withstanding Voltage minimums, DWV

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

Pin to Ground

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

-LLCR (5 signal and 5 ground LLCR test points)

Signal pin:

- **Initial ---------- 90.94 mOhms Max**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 5 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 ---------- 24.76 mOhms Max**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 5 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

Mechanical Shock/Random Vibration/Event Detection:

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

Contact Captivation:

Captivation Force:

- **Min ---------- 7.12 lbs**
- **Max ---------- 7.44 lbs**

Center Contact Retention:

Contact Recess:
Initial
Min---------- -0.00220 inch
Max---------- -0.00260 inch
After Retention 4.0 Lbs
Min---------- -0.00220 inch
Max---------- -0.00270 inch

DATA SUMMARIES

INSULATION RESISTANCE (IR):

	Pin to Ground
	Mated
Minimum	**100-J-P-VP-ST-CMM-1**
Initial	45000
Thermal Shock	45000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**100-J-P-VP-ST-CMM-1**
Test Voltage	500

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

DATA SUMMARIES Continued

LLCR IR/DWV Group:

1) A total of 5 signal and 5 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	2026/4/23	2026/4/28
Room Temp (Deg C)	24	23
Rel Humidity (%)	55	53
Technician	Kane Wu	Kane Wu
mOhm values	Actual initial	Delta Thermal Shock & IR/DWV
	Pin Type: Signal 1	
Average	90.22	1.27
St. Dev.	0.74	0.91
Min	89.20	0.10
Max	90.94	2.47
Summary Count	5	5
Total Count	5	5
	Pin Type: GND 1	
Average	22.52	0.94
St. Dev.	1.43	0.46
Min	21.26	0.23
Max	24.76	1.47
Summary Count	5	5
Total Count	5	5

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

DATA SUMMARIES Continued

Shock & Vibration Event Detection:

Nanosecond Event Detection-

Shock and Vibration Event Detection Summary	
Contacts tested	5
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

Contact Captivation:

Captivation force:

	Force (lbs)
Minimum	**7.12**
Maximum	7.44
Average	7.24

Group 2

Interface Gaging:

Initial

Parameter	
Contact Recess	
Min	0.00220
Max	0.00260
Avg	0.00236
St. Dev.	0.00014
Count	5

After Retention 4.0 Lb

Parameter	
Contact Recess	
Min	0.00220
Max	0.00270
Avg	0.00230
St. Dev.	0.00020
Count	5

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: TW-FS-03
Description: Starret MMS-2500 series test stand
Manufacturer: Starret
Model: Starret MMS-2500-L3
Serial #: 20131479
Accuracy: See Manual
… Last Cal: 12/16/2025, Next Cal: 12/15/2026

Equipment #: TW-MOM-1
Description: Switch/Multimeter
Manufacturer: Keithley
Model: 3577
Serial #: 0787975
Accuracy: See Manual
… Last Cal: 04/17/2025, Next Cal: 04/16/2026

Equipment #: TW-OV-05
Description: Thermal Shock Chamber
Manufacturer: Giant Force
Model: GTST-087-65-AW
Serial #: MA12602-003
Accuracy: See Manual
… Last Cal: 02/12/2026, Next Cal: 02/11/2027

Equipment #: TW-HPT-02
Description: Hipot Safety Tester
Manufacturer: Vitrek
Model: V73
Serial #: 26862
Accuracy:
… Last Cal: 03/31/2026, Next Cal: 03/30/2027

Equipment #: TW-VS-01
Description: Shock & Vibration Table
Manufacturer: Vibration Source
Model: VS-1000V-76
Serial #: E115006
Accuracy: See Manual
… Last Cal: 03/16/2026, Next Cal: 03/17/2027

Equipment #: TW-VS-02
Description: Vibration Contllroller
Manufacturer: Vibration Source
Model: VST-9002
Serial #: 428102707
Accuracy: See Manual
… Last Cal: 03/04/2026, Next Cal: 03/03/2027

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: ED-03
Description: Event Detector
Manufacturer: Analysis Tech
Model: 32EHD
Serial #: 1240731
Accuracy: See Manual
… Last Cal: 11/11/2025, Next Cal: 11/11/2027