Project: Design Qualification Test Report	Tracking Code: CR-1261702_Report_Rev_3
Requested by: Patrick Goodwin	Date: 2/19/2026
Part #: NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C	
Part description: NVBM/NVBF	Tech: Tony Wagoner
Test Start: 5/12/2025	Test Completed: 6/12/2025

DESIGN QUALIFICATION TEST REPORT

NVBM/NVBF
NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
12/8/2025	**1**	**Initial test**	**KH**
2/3/2026	**2**	**Add the M/U/D group test data from CR-1315401**	**KH**
2/13/2026	**3**	**Update Part numbers and CCC Wording**	**AM**

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 the 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-114550-TST-XX/PCB-113591-TST-XX/PCB-114636-TST-XX.

FLOWCHARTS

Gas Tight

Group 1
NVBM-DP-04-RA-S-2-B-C
NVBF-DP-04-VT-S-2-B-C
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

Thermal Aging

Group 1
NVBM-DP-04-RA-S-2-B-C
NVBF-DP-04-VT-S-2-B-C
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

Normal Force

Group 1
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal Without Thermals Wafer A (Left)

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0106 " Expected Force at Max Deflection = 68 g

Group 2
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal Without Thermals Wafer A (Right)

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0106 " Expected Force at Max Deflection = 68 g

Group 3
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal With Thermals Wafer A (Left)

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0106 " Expected Force at Max Deflection = 68 g

Group 4
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal With Thermals Wafer A (Right)

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Expected Force at Max Deflection = 68 g Deflection = 0.0106 "

Group 5
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal Without Thermals Wafer B (Left)

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Expected Force at Max Deflection = 68 g Deflection = 0.0106 "

Group 6
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal Without Thermals Wafer B (Right)

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Expected Force at Max Deflection = 68 g Deflection = 0.0106 "

Group 7
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal With Thermals Wafer B (Left)

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Expected Force at Max Deflection = 68 g Deflection = 0.0106 "

Group 8
NVBM-DP-04-RA-S-2-B-C

8 Contacts Minimum
Signal With Thermals Wafer B (Right)

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Expected Force at Max Deflection = 68 g Deflection = 0.0106 "

Group 9
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
Signal Without Thermals Wafer A

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0106 " Expected Force at Max Deflection = 68 g

Group 10
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
Signal Without Thermals Wafer B

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Deflection = 0.0106 " Expected Force at Max Deflection = 68 g

Group 11
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
Signal With Thermals Wafer A

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Expected Force at Max Deflection = 68 g Deflection = 0.0106 "

Group 12
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
Signal With Thermals Wafer B

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Expected Force at Max Deflection = 68 g Deflection = 0.0106 "

Group 13
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
MFBL Without Thermals Wafer A

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Expected Force at Max Deflection = 108 g Deflection = 0.02 "

Group 14
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
MFBL Without Thermals Wafer B

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Expected Force at Max Deflection = 108 g Deflection = 0.02 "

Group 15
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
MFBL With Thermals Wafer A

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Expected Force at Max Deflection = 108 g Deflection = 0.02 "

Group 16
NVBF-DP-04-VT-S-2-B-C

8 Contacts Minimum
MFBL With Thermals Wafer B

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.02 " Expected Force at Max Deflection = 108 g

FLOWCHARTS Continued

Group 17
NVBF-DP-04-VT-S-2-B-C
8 Contacts Minimum
Ground Without Thermals Wafer A

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Expected Force at Max Deflection = 109 g Deflection = 0.0106 "

Group 18
NVBF-DP-04-VT-S-2-B-C
8 Contacts Minimum
Ground Without Thermals Wafer B

Step	Description
1.	Contact Gaps
2.	Normal Force (1) Expected Force at Max Deflection = 109 g Deflection = 0.0106 "

Group 19
NVBF-DP-04-VT-S-2-B-C
8 Contacts Minimum
Ground With Thermals Wafer A

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0106 " Expected Force at Max Deflection = 109 g

Group 20
NVBF-DP-04-VT-S-2-B-C
8 Contacts Minimum
Ground With Thermals Wafer B

Step	Description
1.	Contact Gaps
2.	Thermal Age (2)
3.	Contact Gaps
4.	Normal Force (1) Deflection = 0.0106 " Expected Force at Max Deflection = 109 g

(1) Normal Force = EIA-364-04

(2) Thermal Age = EIA-364-17
Test Condition = 4 (105°C)
Time Condition = B (250 Hours)

Current Carrying Capacity

Group 1
NVBM-DP-04-RA-S-2-B-C
NVBF-DP-04-VT-S-2-B-C
1 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 1 Number of Positions = 1 *Note: Center of connector location*

Group 2
NVBM-DP-04-RA-S-2-B-C
NVBF-DP-04-VT-S-2-B-C
8 Pins Powered
Signal

Step	Description
1.	CCC (1) Rows = 8 Number of Positions = 1 *Note: All signal pins combined carry supply wire all grounds on that wafer carry return*

(1) 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

Mating/Unmating/Durability

Group 1
NVBM-DP-04-RA-S-2-B-C
NVBF-DP-04-VT-S-2-B-C
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.	Cycles Quantity = 25 Cycles
7.	Mating/Unmating Force (3)
8.	Cycles Quantity = 25 Cycles
9.	Mating/Unmating Force (3)
10.	Cycles Quantity = 25 Cycles
11.	Mating/Unmating Force (3)
12.	Contact Gaps
13.	LLCR (2) Max Delta = 15 mOhm
14.	Thermal Shock (4)
15.	LLCR (2) Max Delta = 15 mOhm
16.	Humidity (1)
17.	LLCR (2) Max Delta = 15 mOhm
18.	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 = 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

Mating/Unmating/Durability

Group 1
NVBF-DP-16-VT-S-2-B-A
NVBM-DP-16-RA-S-2-B-A
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.	Cycles Quantity = 25 Cycles
7.	Mating/Unmating Force (3)
8.	Cycles Quantity = 25 Cycles
9.	Mating/Unmating Force (3)
10.	Cycles Quantity = 25 Cycles
11.	Mating/Unmating Force (3)
12.	Contact Gaps
13.	LLCR (2) Max Delta = 15 mOhm
14.	Thermal Shock (4)
15.	LLCR (2) Max Delta = 15 mOhm
16.	Humidity (1)
17.	LLCR (2) Max Delta = 15 mOhm
18.	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 = 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: IR = 100V Test Voltage

Note: DWV = 450V Test Voltage

Pin-to-Pin

Group 1

NVBM-DP-04-RA-S-2-B-C

NVBF-DP-04-VT-S-2-B-C

2 Assemblies

Step	Description
1.	IR (3) - Non Standard
2.	DWV at Test Voltage(1)
3.	Thermal Shock(4)
4.	IR (3) - Non Standard
5.	DWV at Test Voltage(1)
6.	Humidity (2)
7.	IR (3) - Non Standard
8.	DWV at Test Voltage(1)

Row-to-Row

Group 2

NVBM-DP-04-RA-S-2-B-C

NVBF-DP-04-VT-S-2-B-C

2 Assemblies

Step	Description
1.	IR (3) - Non Standard
2.	DWV at Test Voltage(1)
3.	Thermal Shock(4)
4.	IR (3) - Non Standard
5.	DWV at Test Voltage(1)
6.	Humidity (2)
7.	IR (3) - Non Standard
8.	DWV at Test Voltage(1)

Pin-to-Ground

Group 3

NVBM-DP-04-RA-S-2-B-C

NVBF-DP-04-VT-S-2-B-C

2 Assemblies

Step	Description
1.	IR (3) - Non Standard
2.	DWV at Test Voltage(1)
3.	Thermal Shock(4)
4.	IR (3) - Non Standard
5.	DWV at Test Voltage(1)
6.	Humidity (2)
7.	IR (3) - Non Standard
8.	DWV at Test Voltage(1)

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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) 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

(3) IR = Other
- Test Condition = 100 Vdc, 2 Minutes Max

(4) 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

Group 1
NVBM-DP-04-RA-S-2-B-C
NVBF-DP-04-VT-S-2-B-C
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 Detection

Group 1
NVBM-DP-04-RA-S-2-B-C
NVBF-DP-04-VT-S-2-B-C
60 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)

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 stress in mated conditions.

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.

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 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 ensure 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.

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 TC^2, 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 should utilize the TC^2 software in order to acquire and record the test data.
10) The permanent set of each contact shall be measured within the TC^2 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 printout will be stored with the Tracking Code paperwork.

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. 85^{o} C
    c. 95^{o} C
    d. 115^{o} 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.

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

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 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
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 housing.
        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 inche 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^{o} 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 (100 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 their rated voltage and withstand momentary over potential due to switching, surges, and another 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).

RESULTS

Temperature Rise, CCC at a 20% de-rating

- **CCC for a 30°C Temperature Rise----------3.5 A per contact with 1 contact (1 x 1) powered**
- **CCC for a 30°C Temperature Rise----------9.2 A per wafer (1.15A per Signal Pin) with 8 contacts (1 x 8) powered - NOTE: (All Signal Pins Combined Carry Supply while all Grounds on that Wafer Carry Return)**

Mating – Unmating Forces

Thermal Aging Group

- **Initial**
  - **Mating**
    - **Min ---------- 2.67 lbs**
    - **Max---------- 3.32 lbs**
  - **Unmating**
    - **Min ---------- 2.20 lbs**
    - **Max---------- 2.68 lbs**
- **After Thermal**
  - **Mating**
    - **Min ---------- 1.60 lbs**
    - **Max---------- 1.87 lbs**
  - **Unmating**
    - **Min ---------- 1.29 lbs**
    - **Max---------- 1.46 lbs**

RESULTS Continued

Mating/Unmating Durability Group (NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C)

- **Initial**
  - **Mating**
    - **Min ---------- 2.61 lbs**
    - **Max---------- 3.22 lbs**
  - **Unmating**
    - **Min ---------- 1.98 lbs**
    - **Max---------- 2.45 lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ---------- 3.27 lbs**
    - **Max---------- 3.59 lbs**
  - **Unmating**
    - **Min ---------- 2.38 lbs**
    - **Max---------- 2.67 lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ---------- 3.20 lbs**
    - **Max---------- 3.62 lbs**
  - **Unmating**
    - **Min ---------- 2.49 lbs**
    - **Max---------- 2.82 lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ---------- 3.20 lbs**
    - **Max---------- 3.59 lbs**
  - **Unmating**
    - **Min ---------- 2.55 lbs**
    - **Max---------- 2.97 lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ---------- 3.19 lbs**
    - **Max---------- 3.66 lbs**
  - **Unmating**
    - **Min ---------- 2.62 lbs**
    - **Max---------- 3.01 lbs**
- **After Humidity**
  - **Mating**
    - **Min ---------- 1.72 lbs**
    - **Max---------- 2.05 lbs**
  - **Unmating**
    - **Min ---------- 1.45 lbs**
    - **Max---------- 1.78 lbs**

RESULTS Continued

Mating/Unmating Durability Group (NVBM-DP-16-RA-S-2-B-A/NVBF-DP-16-VT-S-2-B-A)

- **Initial**
  - **Mating**
    - **Min ---------- 8.91 lbs**
    - **Max----------10.57 lbs**
  - **Unmating**
    - **Min ---------- 7.40 lbs**
    - **Max---------- 8.68 lbs**
- **After 25 Cycles**
  - **Mating**
    - **Min ----------10.74 lbs**
    - **Max----------12.66 lbs**
  - **Unmating**
    - **Min ---------- 8.90 lbs**
    - **Max----------10.55 lbs**
- **After 50 Cycles**
  - **Mating**
    - **Min ----------11.22 lbs**
    - **Max----------12.90 lbs**
  - **Unmating**
    - **Min ---------- 9.32 lbs**
    - **Max----------10.93 lbs**
- **After 75 Cycles**
  - **Mating**
    - **Min ----------11.45 lbs**
    - **Max----------13.29 lbs**
  - **Unmating**
    - **Min ---------- 9.57 lbs**
    - **Max----------11.13 lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ----------11.79 lbs**
    - **Max----------13.67 lbs**
  - **Unmating**
    - **Min ---------- 9.87 lbs**
    - **Max----------11.40 lbs**
- **After Humidity**
  - **Mating**
    - **Min ---------- 7.89 lbs**
    - **Max---------- 8.73 lbs**
  - **Unmating**
    - **Min ---------- 6.71 lbs**
    - **Max---------- 7.35 lbs**

RESULTS Continued

Normal Force

NVBM Signal pin SH168-B at 0.0106 inches deflection

- **Initial**
  - **Min----------87.80 gf Set------ 0.0000 inch.**
  - **Max ---------- 120.60 gf Set------ 0.0004 inch.**
- **After Thermal**
  - **Min----------60.90 gf Set------ 0.0016 inch.**
  - **Max ----------91.00 gf Set------ 0.0046 inch.**

NVBM Signal pin SH168-A at 0.0106 inches deflection

- **Initial**
  - **Min---------- 106.00 gf Set------ 0.0001 inch.**
  - **Max ---------- 120.20 gf Set------ 0.0006 inch.**
- **After Thermal**
  - **Min----------97.00 gf Set------ 0.0007 inch.**
  - **Max ---------- 116.60 gf Set------ 0.0024 inch.**

NVBM Signal pin SH159-B at 0.0106 inches deflection

- **Initial**
  - **Min----------87.00 gf Set------ 0.0001 inch.**
  - **Max ---------- 117.80 gf Set------ 0.0007 inch.**
- **After Thermal**
  - **Min----------90.00 gf Set------ 0.0008 inch.**
  - **Max ---------- 104.80 gf Set------ 0.0018 inch.**

NVBM Signal pin SH159-A at 0.0106 inches deflection

- **Initial**
  - **Min----------84.50 gf Set------ 0.0001 inch.**
  - **Max ---------- 120.60 gf Set------ 0.0005 inch.**
- **After Thermal**
  - **Min----------93.30 gf Set------ 0.0006 inch.**
  - **Max ---------- 111.50 gf Set------ 0.0012 inch.**

NVBF Signal pin SH164-A at 0.0106 inches deflection

- **Initial**
  - **Min----------64.30 gf Set------ 0.0003 inch.**
  - **Max ----------87.90 gf Set------ 0.0004 inch.**
- **After Thermal**
  - **Min----------55.30 gf Set------ 0.0014 inch.**
  - **Max ----------79.30 gf Set------ 0.0021 inch.**

NVBF Ground pin SH164-A at 0.0106 inches deflection

- **Initial**
  - **Min----------73.00 gf Set------ 0.0000 inch.**
  - **Max ----------78.80 gf Set------ 0.0003 inch.**
- **After Thermal**
  - **Min----------66.90 gf Set------ 0.0003 inch.**
  - **Max ----------73.50 gf Set------ 0.0012 inch.**

NVBF MFBL SH164-A at 0.0200 inches deflection

- **Initial**
  - **Min----------88.00 gf Set------ 0.0002 inch.**
  - **Max ----------93.70 gf Set------ 0.0009 inch.**
- **After Thermal**
  - **Min----------75.20 gf Set------ 0.0020 inch.**
  - **Max ----------86.40 gf Set------ 0.0038 inch.**

RESULTS Continued

Normal Force

NVBF Signal pin SH164-B at 0.0106 inches deflection

- **Initial**
  - **Min----------86.50 gf Set------ 0.0003 inch.**
  - **Max ---------- 113.50 gf Set------ 0.0004 inch.**
- **After Thermal**
  - **Min----------66.50 gf Set------ 0.0017 inch.**
  - **Max ----------89.00 gf Set------ 0.0024 inch.**

NVBF Ground pin SH164-B at 0.0106 inches deflection

- **Initial**
  - **Min----------70.00 gf Set------ 0.0000 inch.**
  - **Max ----------88.00 gf Set------ 0.0002 inch.**
- **After Thermal**
  - **Min----------67.30 gf Set------ 0.0005 inch.**
  - **Max ----------79.50 gf Set------ 0.0014 inch.**

NVBF MFBL SH164-B at 0.0200 inches deflection

- **Initial**
  - **Min----------83.00 gf Set------ 0.0003 inch.**
  - **Max ----------96.00 gf Set------ 0.0011 inch.**
- **After Thermal**
  - **Min----------75.70 gf Set------ 0.0027 inch.**
  - **Max ----------84.10 gf Set------ 0.0040 inch.**

RESULTS Continued

Insulation Resistance minimums, IR

Pin to Pin 1

- **Initial**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Humidity**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 6300 Meg Ω ---------- Passed**

Pin to Pin 2

- **Initial**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Humidity**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**

Row to Row

- **Initial**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Humidity**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**

Pin to Ground 1

- **Initial**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Humidity**
  - **Mated ---------- 5700 Meg Ω ---------- Passed**
  - **Unmated ---------- 5700 Meg Ω ---------- Passed**

Pin to Ground 2

- **Initial**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**
- **Humidity**
  - **Mated ---------- 9000 Meg Ω ---------- Passed**
  - **Unmated ---------- 9000 Meg Ω ---------- Passed**

RESULTS Continued

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage----------600 VAC**
  - **Test Voltage ----------450 VAC**
  - **Working Voltage ----------150 VAC**

Pin to Pin 1

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

Pin to Pin 2

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

Row to Row

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

Pin to Ground 1

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

Pin to Ground 2

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

RESULTS Continued

LLCR Gas Tight (160 signal and 32 ground LLCR test points)

Signal pin

- **Initial ---------- 28.11 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 160 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 ---------- 7.19 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 32 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**

LLCR Thermal Aging (256 signal and 32 ground LLCR test points)

Signal pin

- **Initial ---------- 27.6 mOhms Max**
- **Thermal Aging**
  - **<= +5.0 mOhms ---------- 241 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 15 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 ---------- 6.93 mOhms Max**
- **Thermal Aging**
  - **<= +5.0 mOhms ---------- 32 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 (256 signal and 32 ground LLCR test points)

NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C

Signal pin

- **Initial ---------- 27.81 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms----------256 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**
  - **<= +5.0 mOhms----------256 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**
- **Humidity**
  - **<= +5.0 mOhms----------256 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 ----------6.93 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms---------- 32 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**
  - **<= +5.0 mOhms---------- 32 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**
- **Humidity**
  - **<= +5.0 mOhms---------- 32 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 (1024 signal and 128 ground LLCR test points)

NVBM-DP-16-RA-S-2-B-A/NVBF-DP-16-VT-S-2-B-A

Signal pin

- **Initial ---------- 31.32 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms---------- 1024 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**
  - **<= +5.0 mOhms---------- 1024 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**
- **Humidity**
  - **<= +5.0 mOhms---------- 1023 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 ----------9.73 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms----------128 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**
  - **<= +5.0 mOhms----------128 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**
- **Humidity**
  - **<= +5.0 mOhms----------128 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 (256 signal and 32 ground LLCR test points)

Signal pin

- **Initial ---------- 28.20 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms----------247 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms----------9 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 ----------6.96 mOhms Max**
- **Shock &Vibration**
  - **<= +5.0 mOhms---------- 32 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:

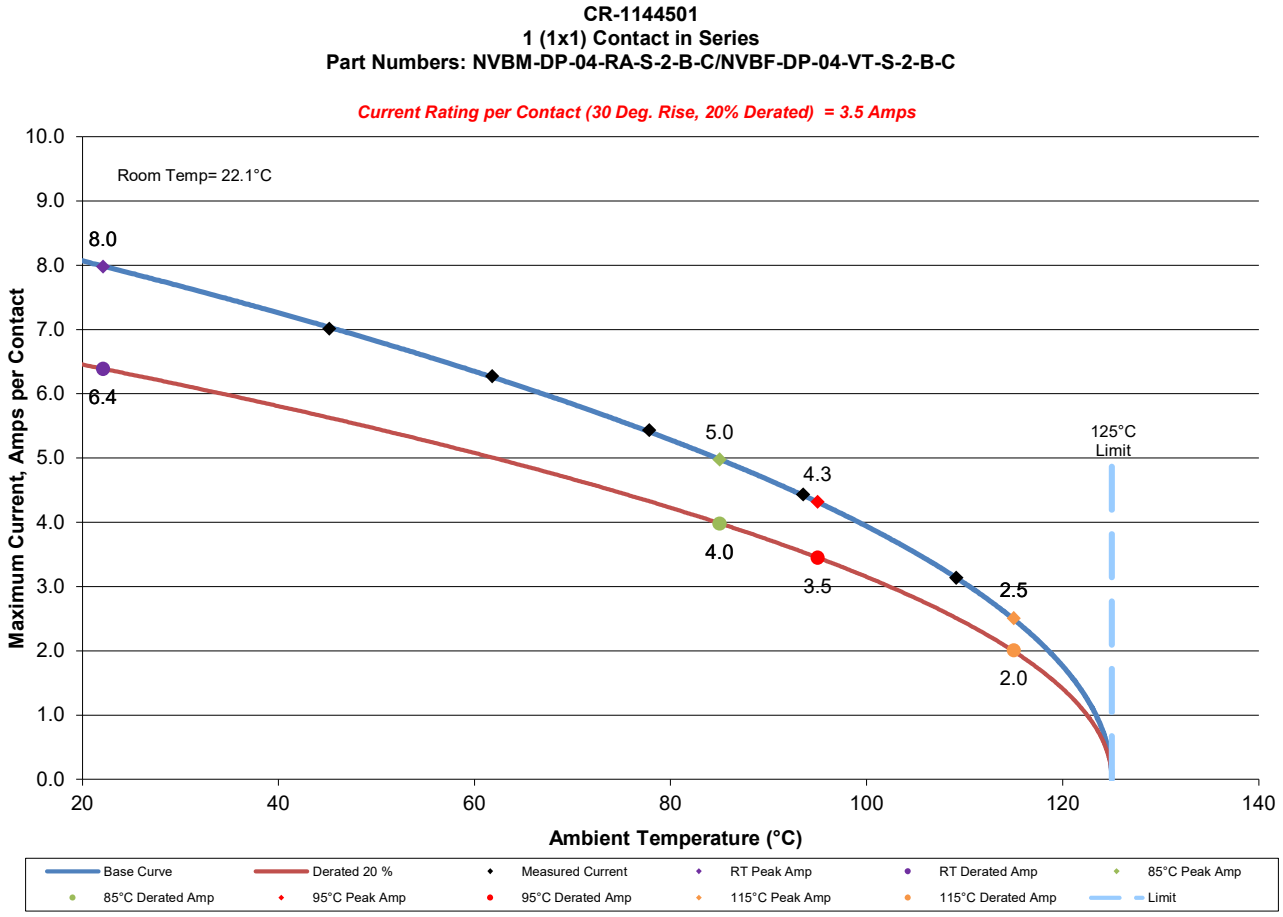
- **Shock**
  - **No Damage---------- ---------- Pass**
  - **50 Nanoseconds ---------- ---------- Pass**
- **Vibration**
  - **No Damage---------- ---------- Pass**
  - **50 Nanoseconds ---------- ---------- Pass**

DATA SUMMARIES

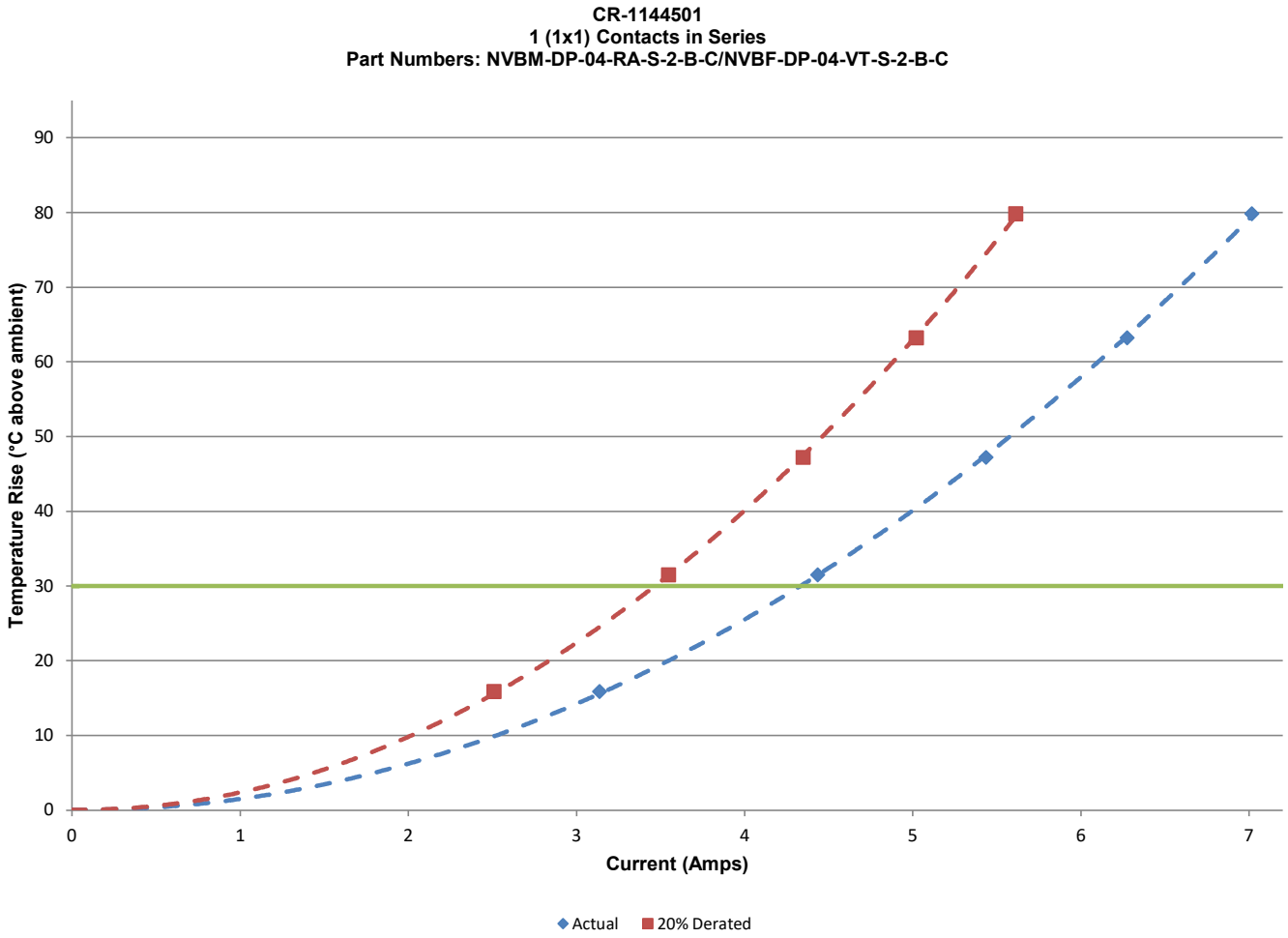
TEMPERATURE RISE (Current Carrying Capacity, CCC):

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

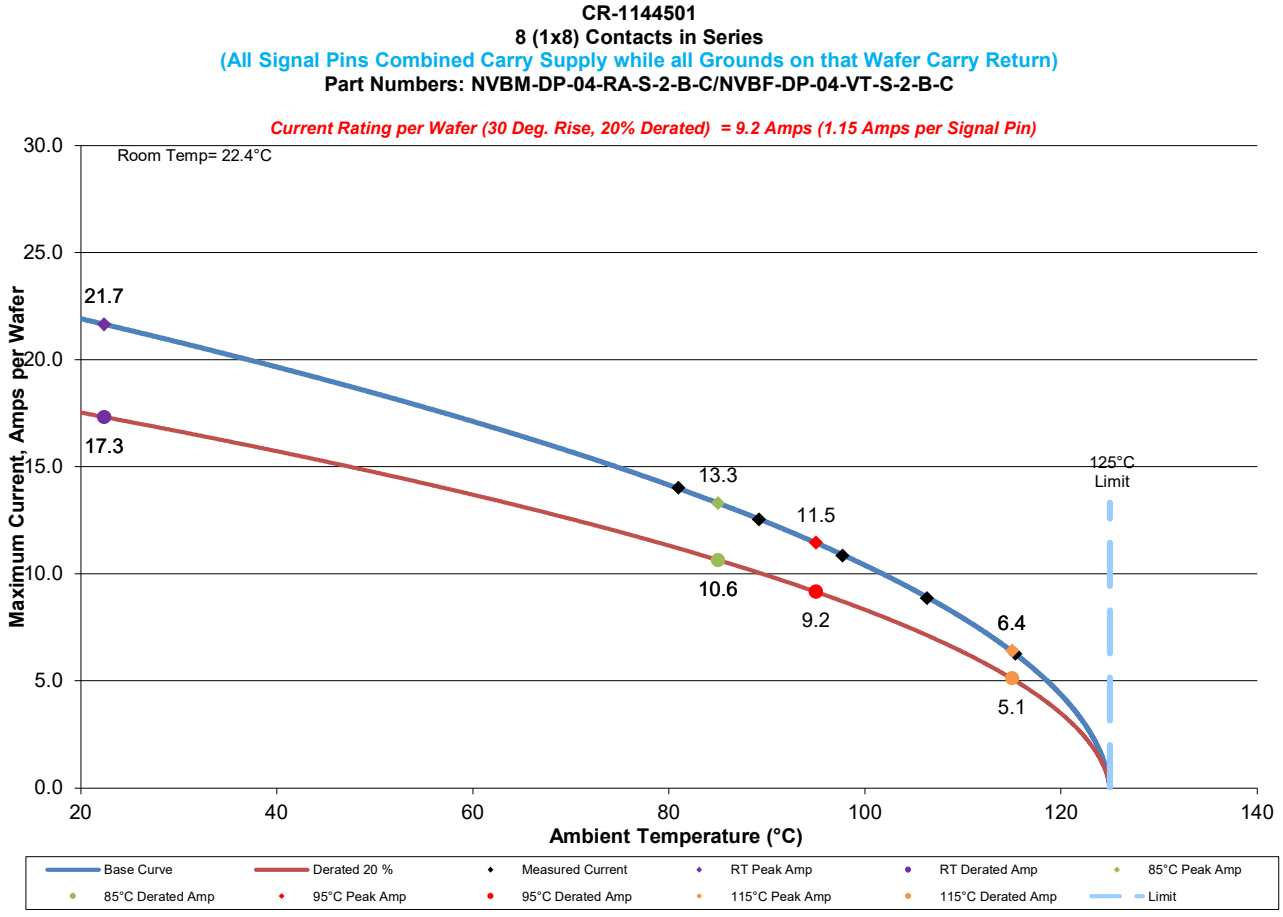


DATA SUMMARIES Continued

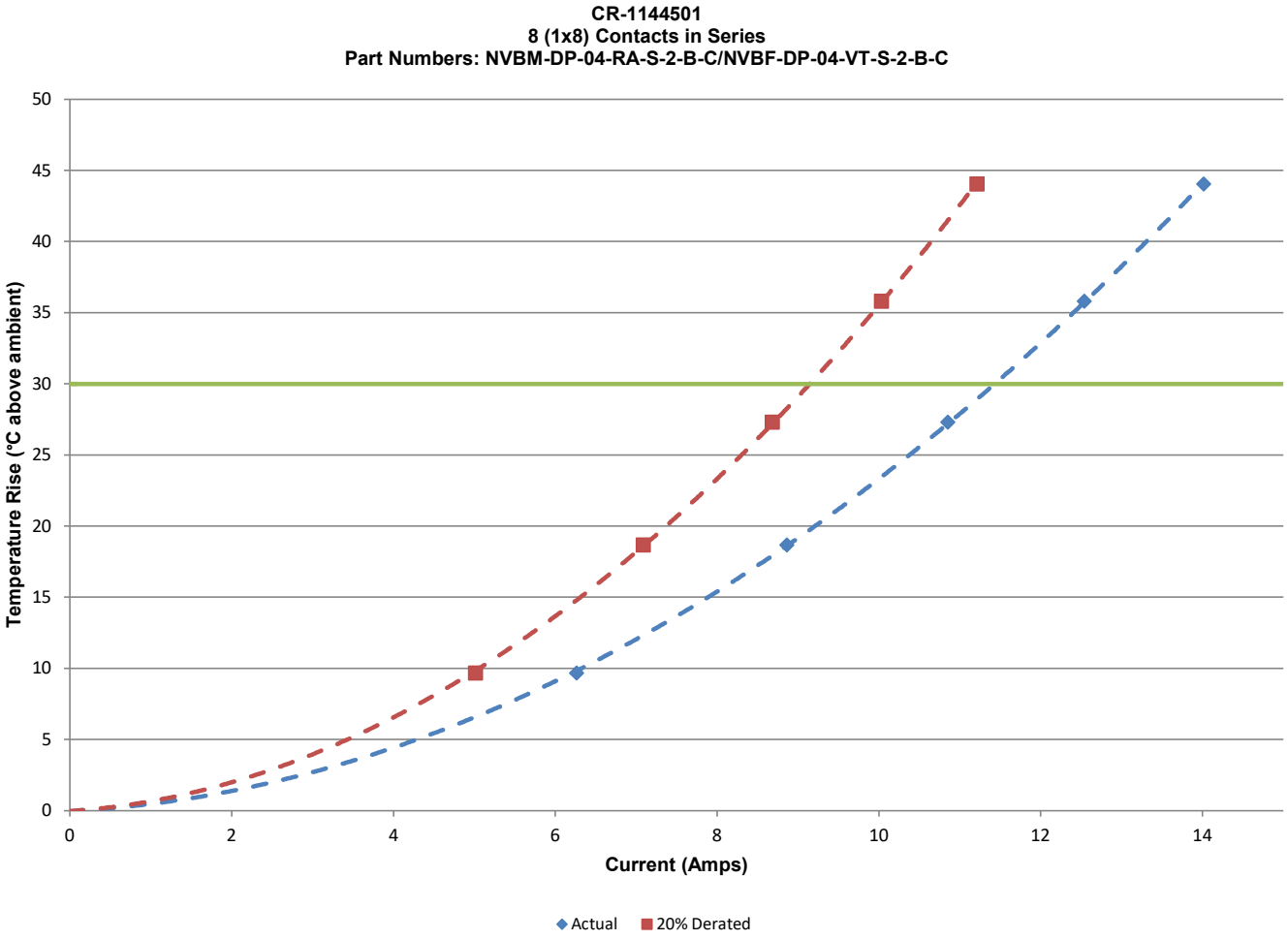


DATA SUMMARIES Continued

b. Linear configuration with 8 adjacent conductors/contacts powered



DATA SUMMARIES Continued



DATA SUMMARIES Continued

MATING/UNMATING:

Thermal Aging Group

	Initial				After Thermals			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	11.88	2.67	9.79	2.20	7.12	1.60	5.74	1.29
Maximum	14.77	3.32	11.92	2.68	8.32	1.87	6.49	1.46
Average	13.73	**3.09**	10.89	**2.45**	7.69	**1.73**	6.12	**1.38**
St Dev	0.91	0.20	0.76	0.17	0.42	0.09	0.29	0.07
Count	8	8	8	8	8	8	8	8

Mating/Unmating Durability Group (NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C)

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	11.61	2.61	8.81	1.98	14.54	3.27	10.59	2.38
Maximum	14.32	3.22	10.90	2.45	15.97	3.59	11.88	2.67
Average	13.35	**3.00**	9.86	**2.22**	15.50	**3.48**	11.54	**2.60**
St Dev	0.82	0.18	0.69	0.15	0.50	0.11	0.44	0.10
Count	8	8	8	8	8	8	8	8
	50 Cycles				75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	14.23	3.20	11.08	2.49	14.23	3.20	11.34	2.55
Maximum	16.10	3.62	12.54	2.82	15.97	3.59	13.21	2.97
Average	15.47	**3.48**	12.02	**2.70**	15.41	**3.46**	12.52	**2.81**
St Dev	0.65	0.15	0.45	0.10	0.64	0.14	0.59	0.13
Count	8	8	8	8	8	8	8	8
	100 Cycles				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	14.19	3.19	11.65	2.62	7.65	1.72	6.45	1.45
Maximum	16.28	3.66	13.39	3.01	9.12	2.05	7.92	1.78
Average	15.41	**3.47**	12.81	**2.88**	8.42	**1.89**	7.13	**1.60**
St Dev	0.68	0.15	0.60	0.13	0.52	0.12	0.50	0.11
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

Mating/Unmating Durability Group (NVBM-DP-16-RA-S-2-B-A/NVBF-DP-16-VT-S-2-B-A)

	Initial				25 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	39.63	8.91	32.92	7.40	47.77	10.74	39.59	8.90
Maximum	47.02	10.57	38.61	8.68	56.31	12.66	46.93	10.55
Average	44.06	**9.91**	36.06	**8.11**	53.41	**12.01**	43.02	**9.67**
St Dev	2.43	0.55	1.80	0.41	3.04	0.68	2.28	0.51
Count	8	8	8	8	8	8	8	8

	50 Cycles				75 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	49.91	11.22	41.46	9.32	50.93	11.45	42.57	9.57
Maximum	57.38	12.90	48.62	10.93	59.11	13.29	49.51	11.13
Average	54.55	**12.26**	45.12	**10.15**	55.82	**12.55**	46.62	**10.48**
St Dev	2.80	0.63	2.18	0.49	2.84	0.64	2.26	0.51
Count	8	8	8	8	8	8	8	8

	100 Cycles				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)	Newtons	Force (Lbs)
Minimum	52.44	11.79	43.90	9.87	35.09	7.89	29.85	6.71
Maximum	60.80	13.67	50.71	11.40	38.83	8.73	32.69	7.35
Average	57.42	**12.91**	47.94	**10.78**	37.32	**8.39**	31.28	**7.03**
St Dev	2.84	0.64	2.22	0.50	1.63	0.37	0.97	0.22
Count	8	8	8	8	8	8	8	8

DATA SUMMARIES Continued

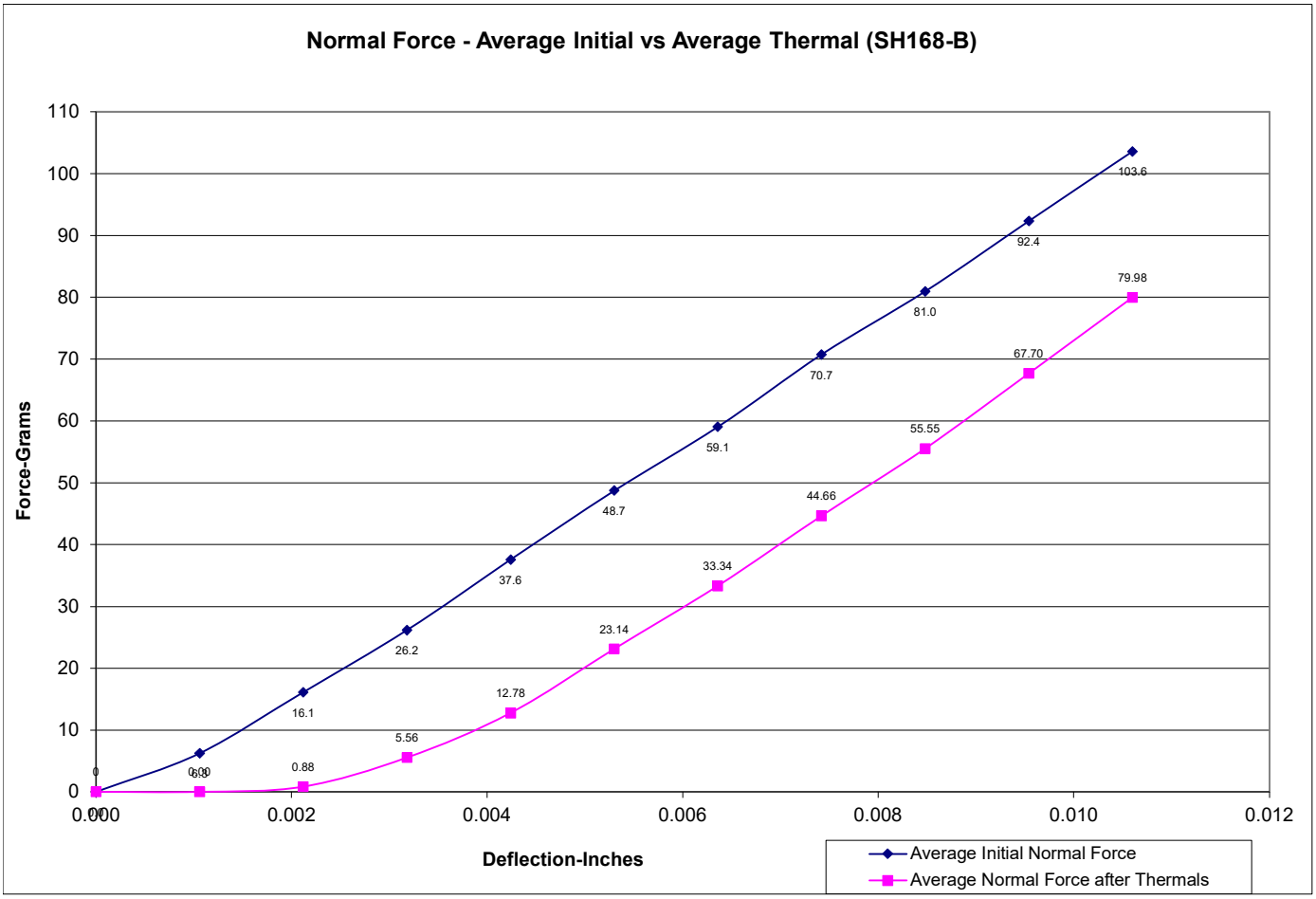
NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

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

NVBM Signal pin SH168-B

	Deflections in inches Forces in Grams										
Initial	**0.0011**	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	6.26	16.13	26.16	37.56	48.74	59.06	70.74	80.96	92.35	103.59	0.0002
Min	3.00	9.60	18.10	27.90	37.30	47.60	58.40	67.40	77.50	87.80	0.0000
Max	10.70	23.10	34.70	48.00	60.60	72.10	85.10	95.80	108.30	120.60	0.0004
St. Dev	2.511	4.258	5.231	6.601	7.787	8.269	9.176	10.001	10.981	11.608	0.0001
Count	8	8	8	8	8	8	8	8	8	8	8

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	0.00	0.88	5.56	12.78	23.14	33.34	44.66	55.55	67.70	79.98	0.0025
Min	0.00	0.00	0.00	0.00	5.90	17.10	28.80	40.00	51.40	60.90	0.0016
Max	0.00	2.00	11.40	23.90	36.20	45.90	55.90	67.00	79.10	91.00	0.0046
St. Dev	0.000	0.919	4.362	8.763	10.621	10.634	10.455	10.780	11.474	12.254	0.0011
Count	8	8	8	8	8	8	8	8	8	8	8

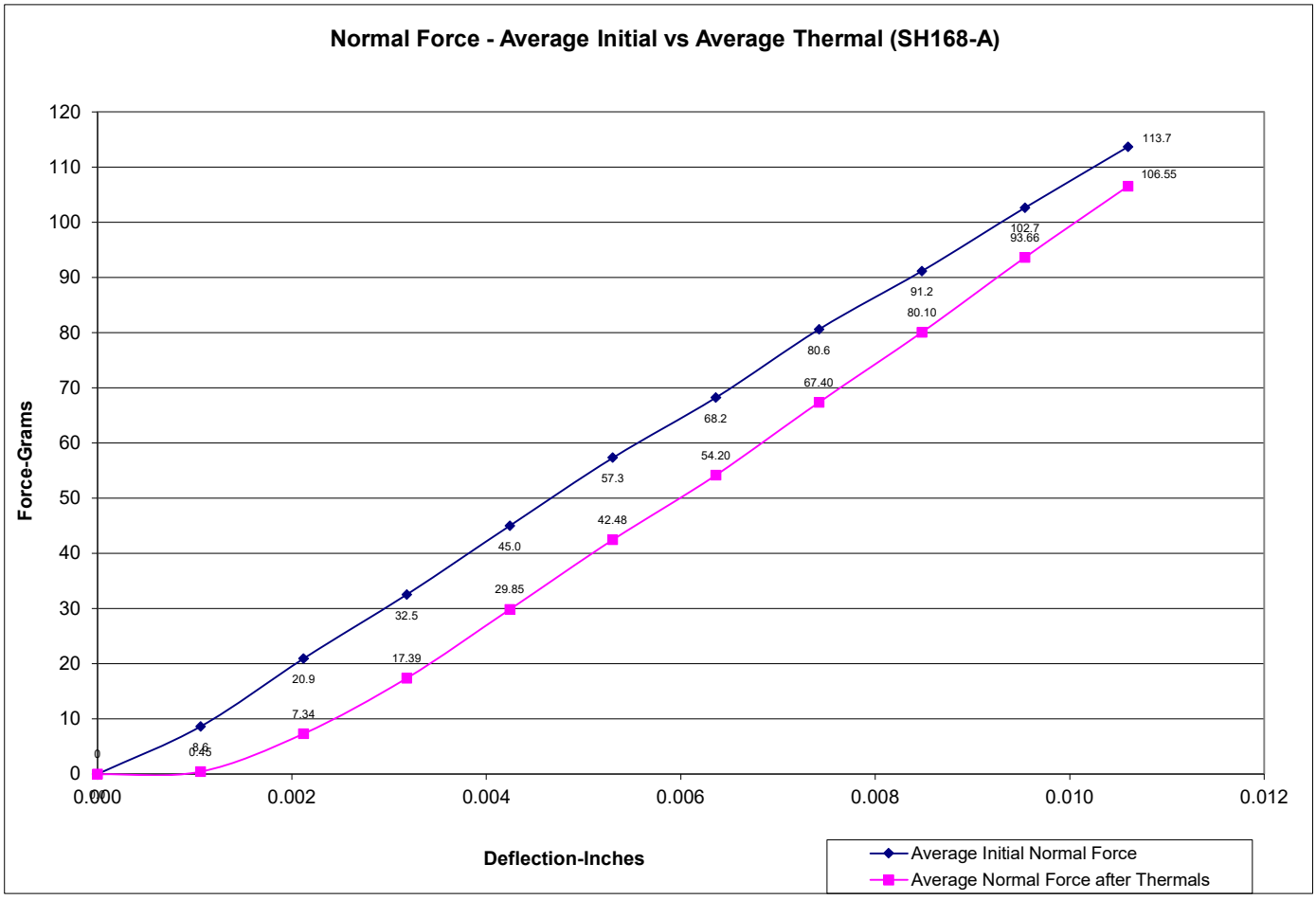


DATA SUMMARIES Continued

NVBM Signal pin SH168-A

Initial	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	8.61	20.94	32.53	45.01	57.34	68.24	80.61	91.19	102.65	113.69	0.0004
Min	6.40	14.90	27.40	40.60	53.20	63.40	74.30	84.30	95.00	106.00	0.0001
Max	11.50	24.80	37.00	49.80	63.00	73.60	86.30	97.40	109.20	120.20	0.0006
St. Dev	2.084	3.405	3.523	3.745	4.263	4.325	4.799	5.456	5.668	5.698	0.0002
Count	8	8	8	8	8	8	8	8	8	8	8

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	0.45	7.34	17.39	29.85	42.48	54.20	67.40	80.10	93.66	106.55	0.0013
Min	-0.10	0.00	7.40	20.10	32.70	44.30	57.30	71.20	84.50	97.00	0.0007
Max	1.70	12.60	23.90	37.10	49.70	61.80	75.00	89.00	104.00	116.60	0.0024
St. Dev	0.621	4.923	6.316	6.427	6.162	6.353	6.708	6.912	7.457	7.605	0.0006
Count	8	8	8	8	8	8	8	8	8	8	8

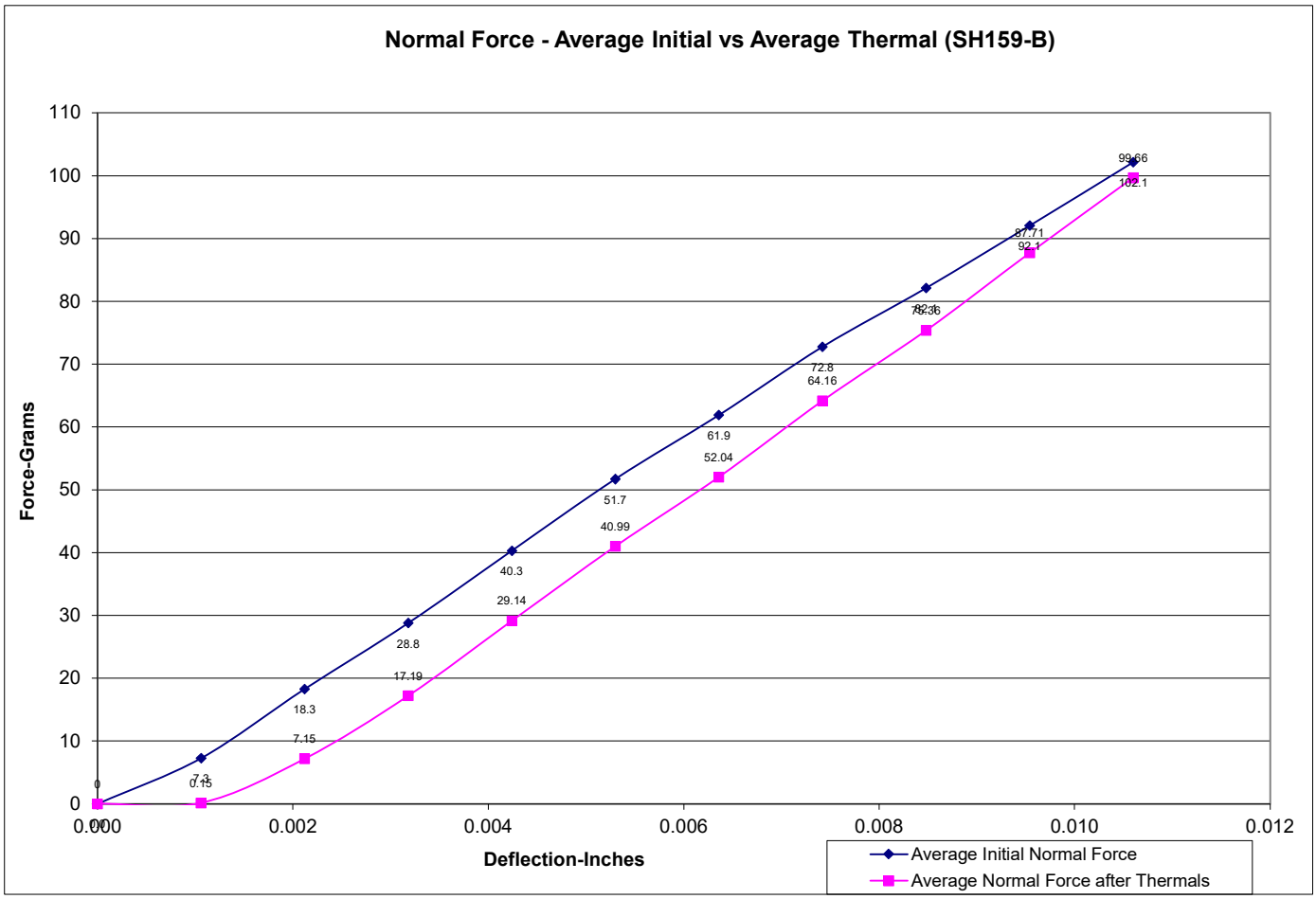


DATA SUMMARIES Continued

NVBM Signal pin SH159-B

Initial	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	7.29	18.26	28.78	40.30	51.71	61.91	72.76	82.13	92.08	102.14	0.0004
Min	6.10	16.10	26.80	37.40	47.70	56.50	65.50	72.80	79.50	87.00	0.0001
Max	9.10	21.60	31.30	43.90	56.40	67.90	80.60	92.00	105.10	117.80	0.0007
St. Dev	1.164	1.971	1.912	2.465	3.125	4.106	5.539	7.200	9.426	11.052	0.0002
Count	8	8	8	8	8	8	8	8	8	8	8

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	0.15	7.15	17.19	29.14	40.99	52.04	64.16	75.36	87.71	99.66	0.0013
Min	-0.10	4.30	14.40	26.50	37.40	46.60	57.10	67.40	79.00	90.00	0.0008
Max	0.70	10.10	20.90	32.80	44.90	56.00	68.40	80.00	92.70	104.80	0.0018
St. Dev	0.288	2.245	2.325	2.284	2.497	2.946	3.478	3.908	4.296	4.570	0.0003
Count	8	8	8	8	8	8	8	8	8	8	8

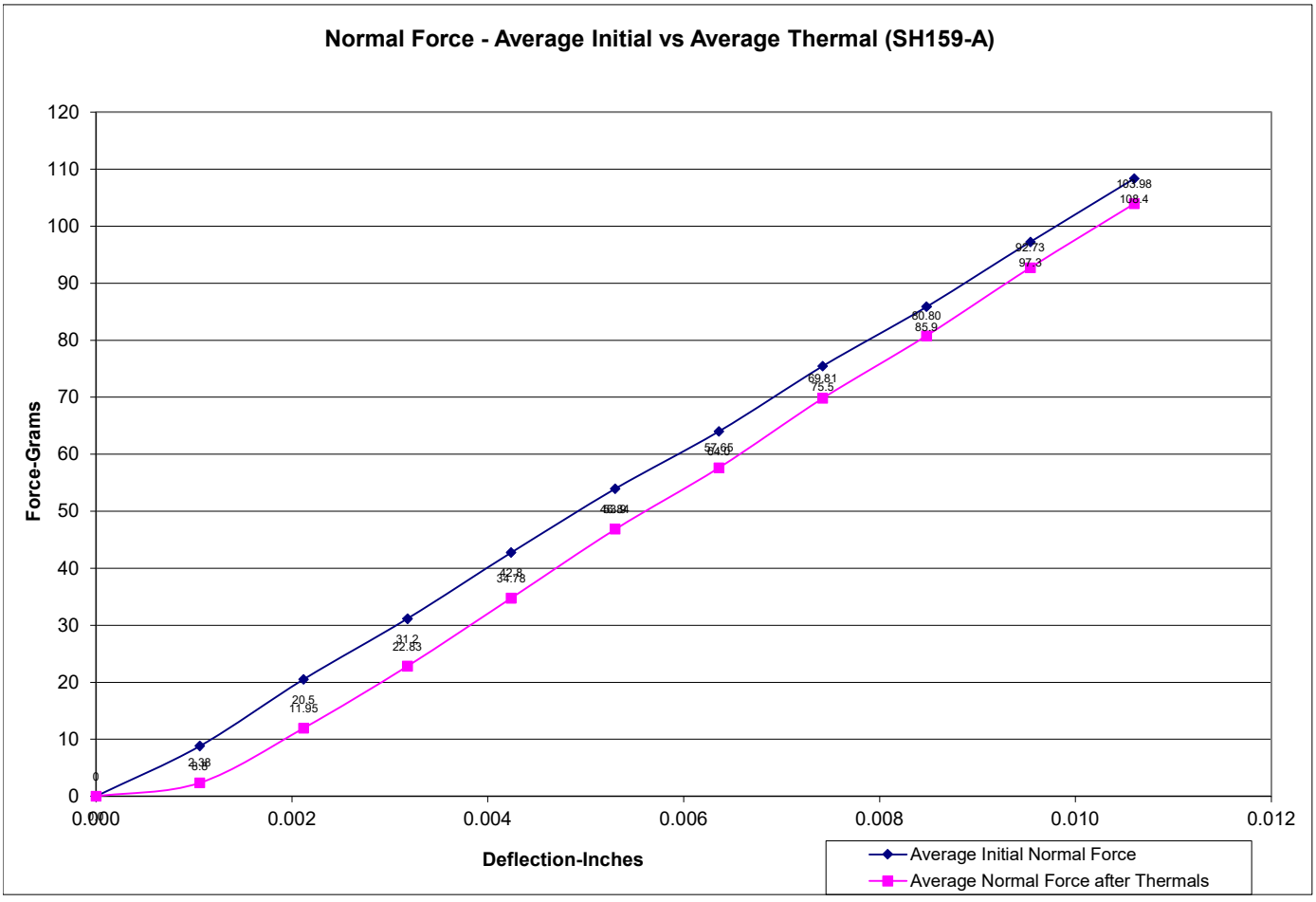


DATA SUMMARIES Continued

NVBM Signal pin SH159-A

Initial	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	8.83	20.52	31.15	42.77	53.93	64.02	75.45	85.87	97.25	108.37	0.0003
Min	7.70	17.40	25.60	34.60	43.40	50.90	59.90	67.70	76.00	84.50	0.0001
Max	10.70	23.10	34.70	48.00	60.60	72.10	85.10	95.80	108.40	120.60	0.0005
St. Dev	1.138	2.124	3.406	5.033	6.582	8.102	9.610	11.012	12.639	14.241	0.0002
Count	6	6	6	6	6	6	6	6	6	6	6

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	2.38	11.95	22.83	34.78	46.84	57.65	69.81	80.80	92.73	103.98	0.0009
Min	0.50	7.90	18.60	31.30	43.20	53.30	64.00	73.30	83.10	93.30	0.0006
Max	5.10	16.50	27.20	39.20	50.70	60.60	73.30	85.00	98.20	111.50	0.0012
St. Dev	1.448	2.834	2.798	2.721	2.465	2.428	3.150	3.827	4.726	5.620	0.0002
Count	8	8	8	8	8	8	8	8	8	8	8

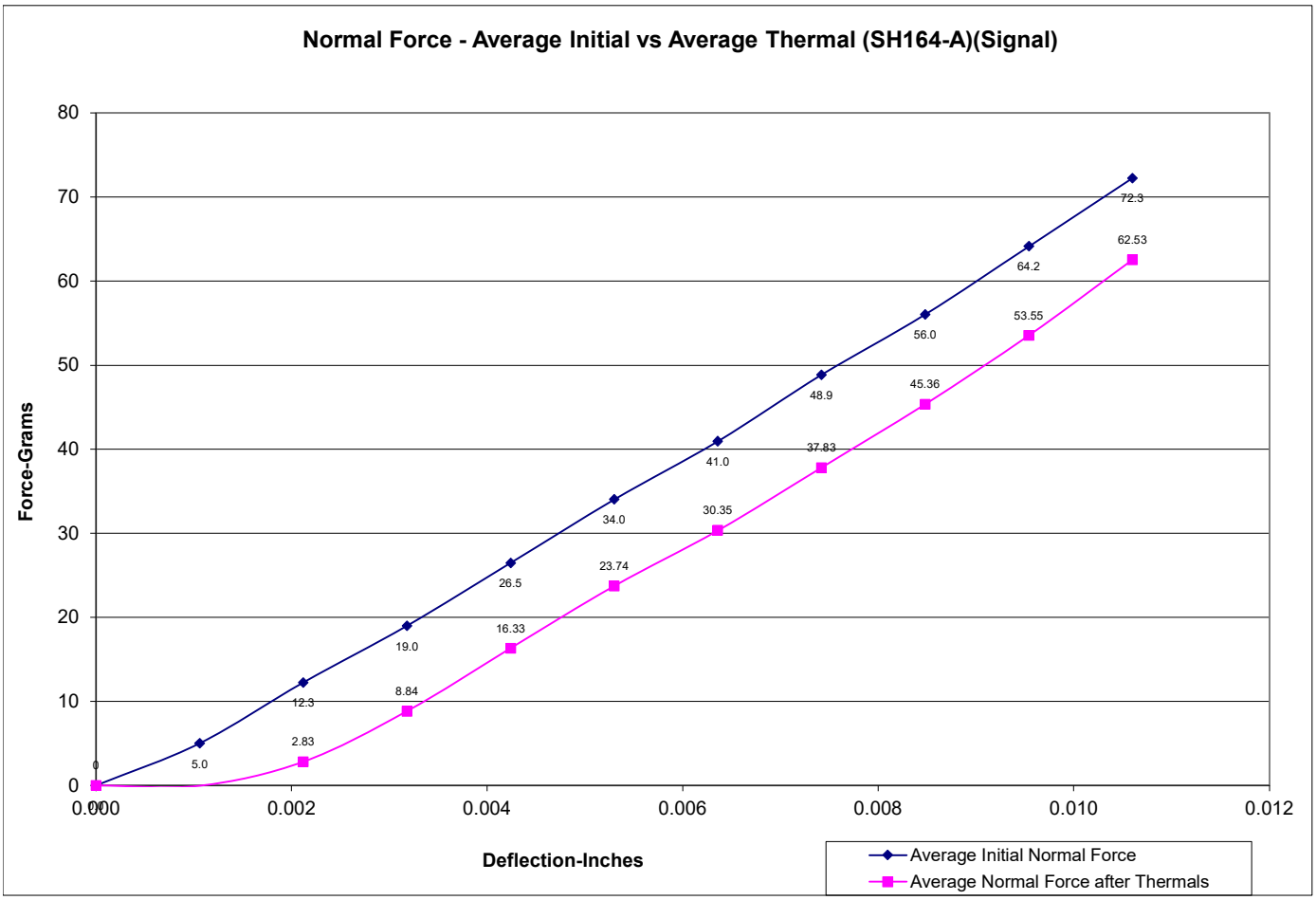


DATA SUMMARIES Continued

NVBF Signal pin SH164-A

Initial	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	5.01	12.26	19.00	26.48	34.03	40.96	48.85	56.04	64.15	72.25	0.0004
Min	4.00	11.00	17.70	24.90	31.80	38.00	44.70	50.70	57.40	64.30	0.0003
Max	7.00	14.50	20.70	28.10	36.10	44.20	55.10	65.30	77.20	87.90	0.0004
St. Dev	1.093	1.256	1.061	1.108	1.402	2.177	3.873	5.526	7.464	9.240	0.0001
Count	8	8	8	8	8	8	8	8	8	8	8

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	-0.03	2.83	8.84	16.33	23.74	30.35	37.83	45.36	53.55	62.53	0.0017
Min	-0.10	0.60	5.40	12.70	19.90	26.60	33.70	40.50	47.90	55.30	0.0014
Max	0.00	5.30	12.00	19.40	27.10	34.00	43.40	54.80	66.70	79.30	0.0021
St. Dev	0.046	1.659	2.492	2.475	2.644	2.610	3.022	4.286	5.973	8.058	0.0002
Count	8	8	8	8	8	8	8	8	8	8	8

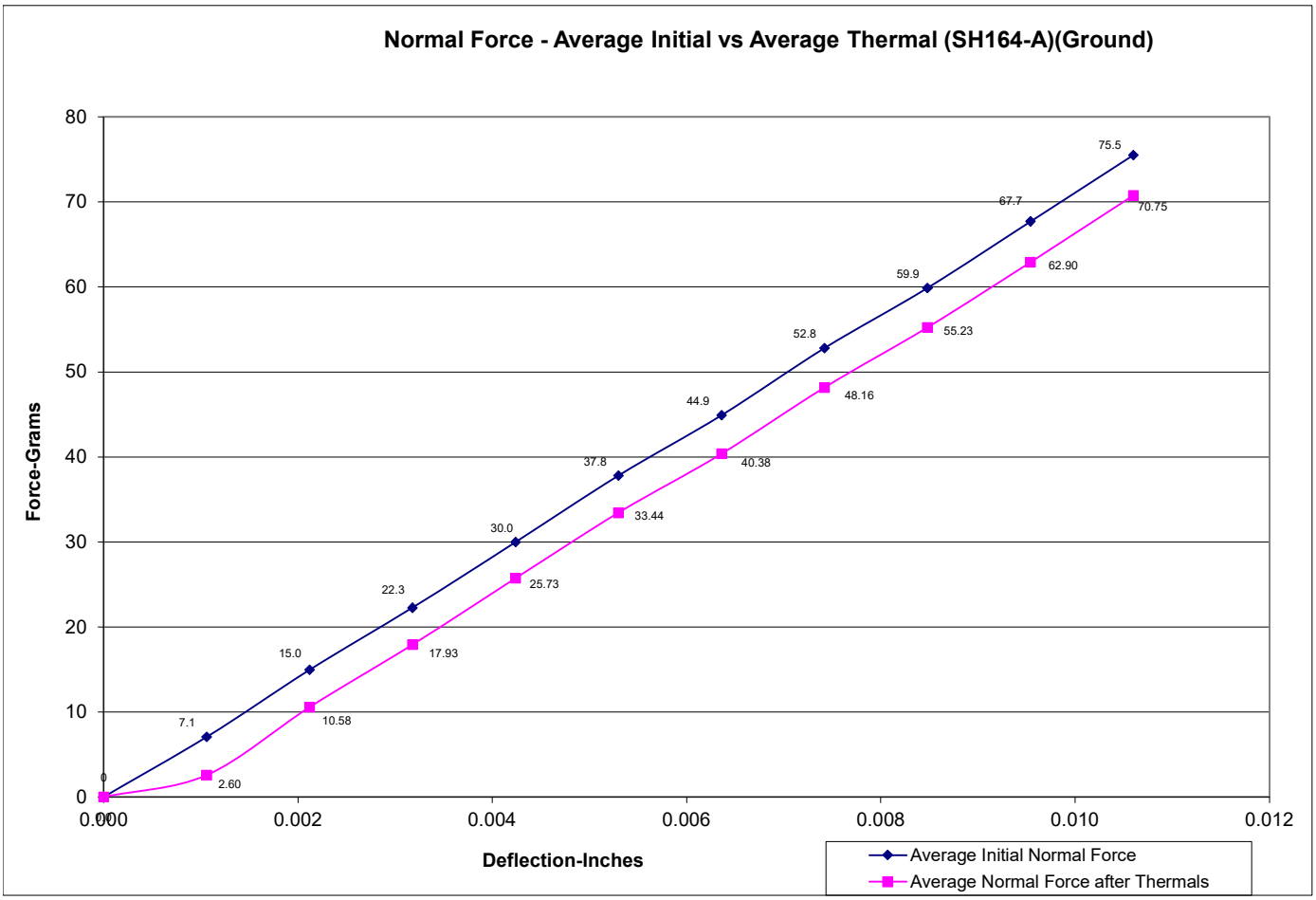


DATA SUMMARIES Continued

NVBF Ground pin SH164-A

Initial	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	7.07	14.96	22.28	30.00	37.82	44.92	52.80	59.88	67.71	75.52	0.0001
Min	6.70	14.50	21.70	29.40	37.10	44.00	51.80	58.30	65.80	73.00	0.0000
Max	7.20	15.40	22.90	30.40	38.50	45.70	54.20	61.80	70.40	78.80	0.0003
St. Dev	0.177	0.280	0.382	0.356	0.418	0.629	0.937	1.239	1.687	1.993	0.0001
Count	10	10	10	10	10	10	10	10	10	10	10

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	2.60	10.58	17.93	25.73	33.44	40.38	48.16	55.23	62.90	70.75	0.0008
Min	0.00	7.10	14.70	22.60	30.20	37.40	45.60	52.50	59.50	66.90	0.0003
Max	5.70	13.70	20.90	28.60	36.20	43.30	50.80	57.90	65.60	73.50	0.0012
St. Dev	2.155	2.246	2.142	2.022	2.087	2.083	1.932	1.960	1.997	2.157	0.0003
Count	10	10	10	10	10	10	10	10	10	10	10

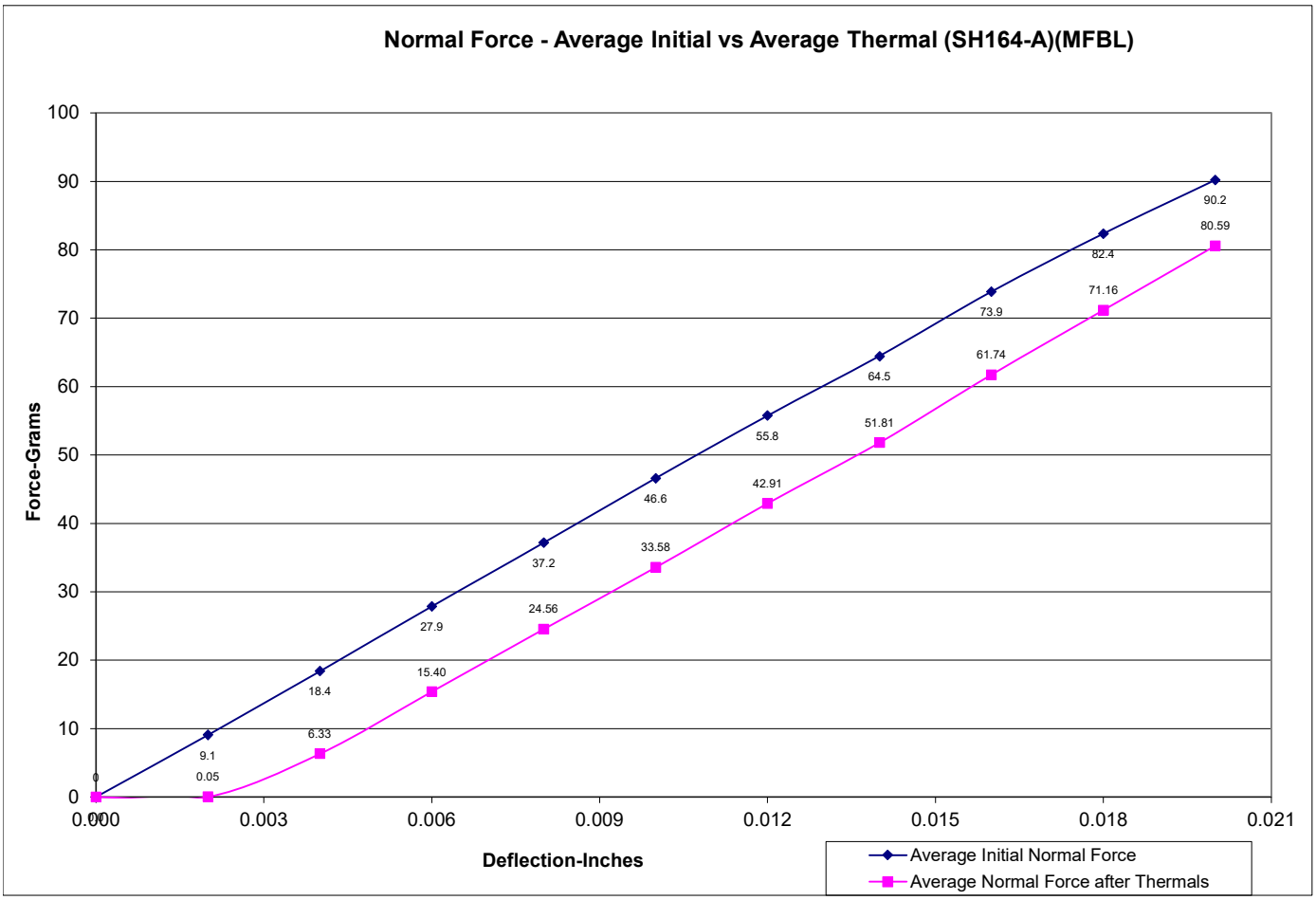


DATA SUMMARIES Continued

NVBM MFBL pin SH164-A

Initial	Deflections in inches Forces in Grams										
	0.0020	**0.0040**	**0.0060**	**0.0080**	**0.0100**	**0.0120**	**0.0140**	**0.0160**	**0.0180**	**0.0200**	***SET***
Averages	9.09	18.40	27.89	37.18	46.59	55.75	64.46	73.88	82.36	90.21	0.0007
Min	7.90	16.10	25.60	35.10	44.80	53.80	62.50	71.80	80.20	88.00	0.0002
Max	9.80	20.00	29.90	39.80	49.60	59.00	67.80	76.90	85.40	93.70	0.0009
St. Dev	0.671	1.133	1.226	1.360	1.500	1.650	1.794	1.823	1.903	2.097	0.0003
Count	8	8	8	8	8	8	8	8	8	8	8

After Thermals	Deflections in inches Forces in Grams										
	0.0020	**0.0040**	**0.0060**	**0.0080**	**0.0100**	**0.0120**	**0.0140**	**0.0160**	**0.0180**	**0.0200**	***SET***
Averages	0.05	6.33	15.40	24.56	33.58	42.91	51.81	61.74	71.16	80.59	0.0029
Min	-0.10	3.60	11.80	20.40	29.70	38.60	47.10	56.70	66.50	75.20	0.0020
Max	0.50	9.20	19.00	28.60	37.90	47.30	56.40	67.00	76.30	86.40	0.0038
St. Dev	0.185	1.772	2.151	2.628	2.899	3.028	3.237	3.652	3.780	4.193	0.0006
Count	8	8	8	8	8	8	8	8	8	8	8

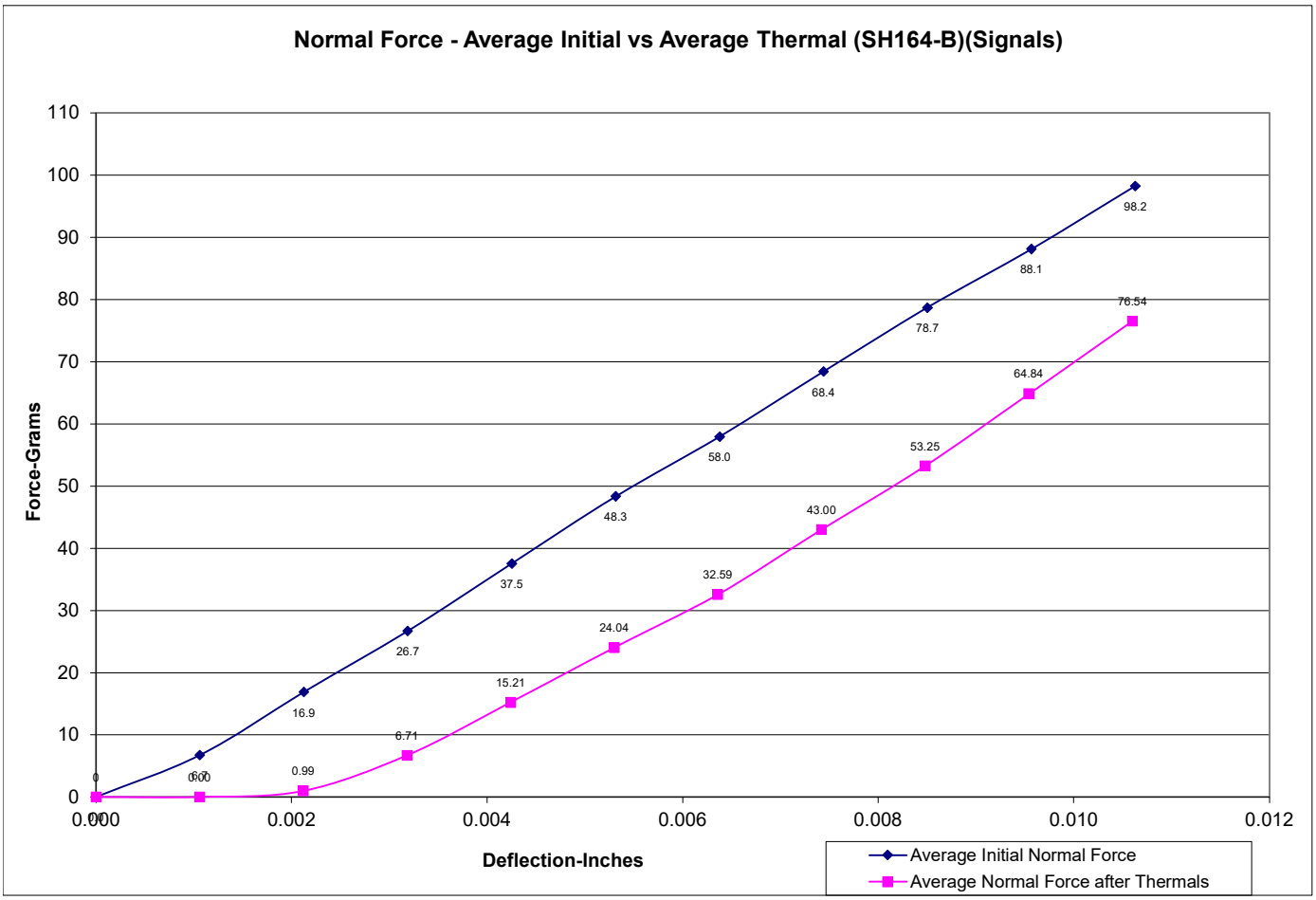


DATA SUMMARIES Continued

NVBM Signal pin SH164-B

Initial	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0043**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0096**	**0.0106**	***SET***
Averages	6.74	16.89	26.71	37.54	48.34	57.95	68.41	78.70	88.11	98.23	0.0003
Min	4.90	15.30	24.10	33.80	43.30	51.60	60.70	69.60	77.60	86.50	0.0003
Max	8.80	19.10	29.30	42.60	55.30	66.90	79.20	91.40	101.90	113.50	0.0004
St. Dev	1.257	1.655	2.072	2.917	3.917	5.013	6.302	7.439	8.409	9.288	0.0001
Count	8	8	8	8	8	8	8	8	8	8	8

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	0.00	0.99	6.71	15.21	24.04	32.59	43.00	53.25	64.84	76.54	0.0020
Min	0.00	0.00	3.60	13.30	20.50	27.20	36.70	45.60	56.30	66.50	0.0017
Max	0.00	1.80	8.80	18.70	29.00	38.80	49.80	62.30	76.00	89.00	0.0024
St. Dev	0.000	0.759	1.738	1.669	2.732	4.237	5.212	6.220	6.928	7.400	0.0002
Count	8	8	8	8	8	8	8	8	8	8	8

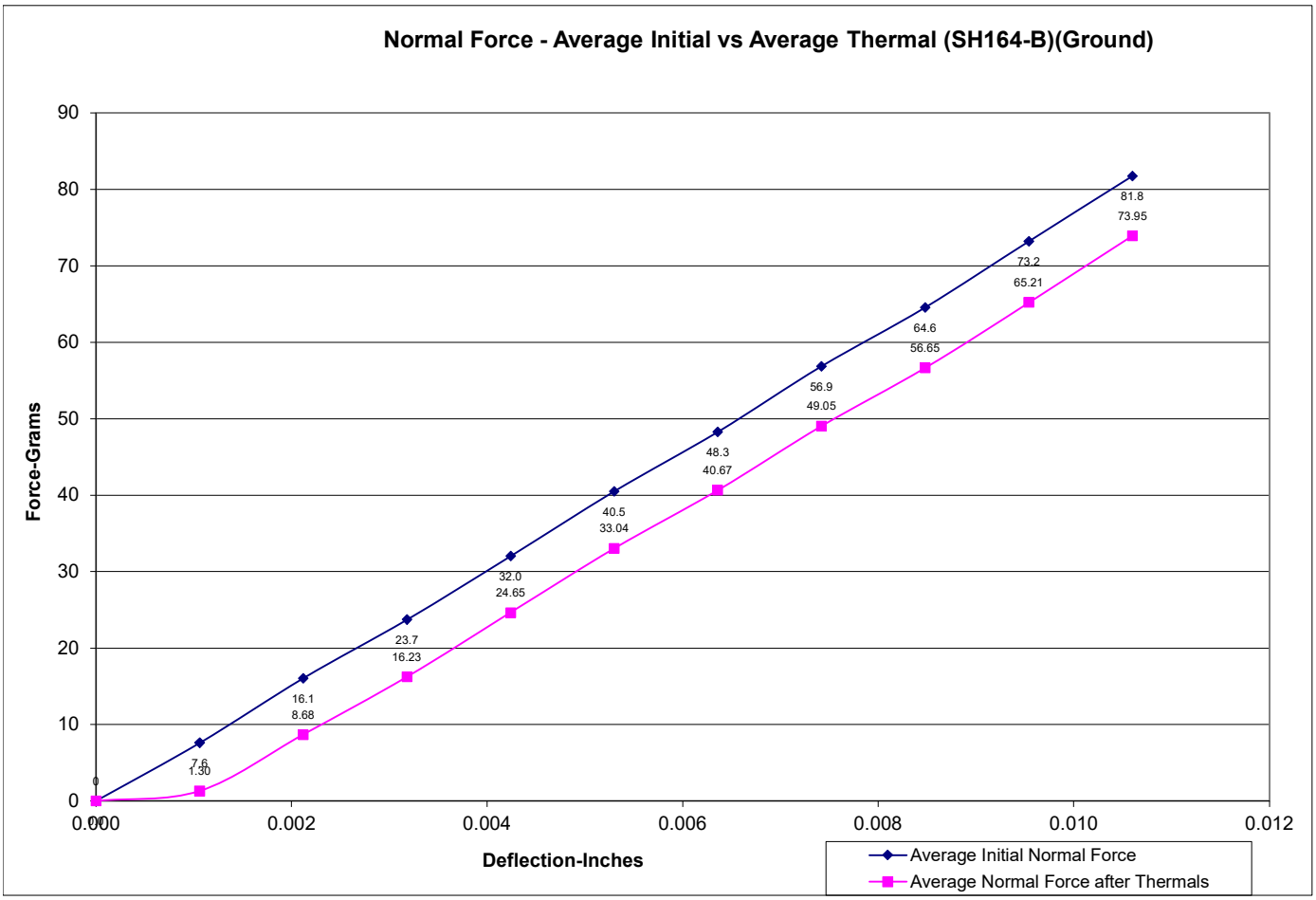


DATA SUMMARIES Continued

NVBM Ground pin SH164-B

Initial	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	7.60	16.06	23.72	32.03	40.49	48.30	56.86	64.56	73.21	81.77	0.0001
Min	6.50	13.90	20.30	27.50	34.90	41.60	49.10	55.70	62.80	70.00	0.0000
Max	8.30	17.50	25.70	35.20	44.00	52.30	61.30	69.60	78.80	88.00	0.0002
St. Dev	0.583	1.146	1.774	2.502	3.132	3.616	4.066	4.590	5.196	5.690	0.0001
Count	10	10	10	10	10	10	10	10	10	10	10

After Thermals	Deflections in inches Forces in Grams										
	0.0011	**0.0021**	**0.0032**	**0.0042**	**0.0053**	**0.0064**	**0.0074**	**0.0085**	**0.0095**	**0.0106**	***SET***
Averages	1.30	8.68	16.23	24.65	33.04	40.67	49.05	56.65	65.21	73.95	0.0010
Min	-0.10	5.40	13.00	20.50	28.80	35.90	43.50	50.80	58.50	67.30	0.0005
Max	4.40	12.60	19.90	28.00	36.60	44.20	53.20	61.30	70.40	79.50	0.0014
St. Dev	1.623	2.474	2.366	2.419	2.499	2.526	2.906	3.243	3.637	3.965	0.0003
Count	10	10	10	10	10	10	10	10	10	10	10

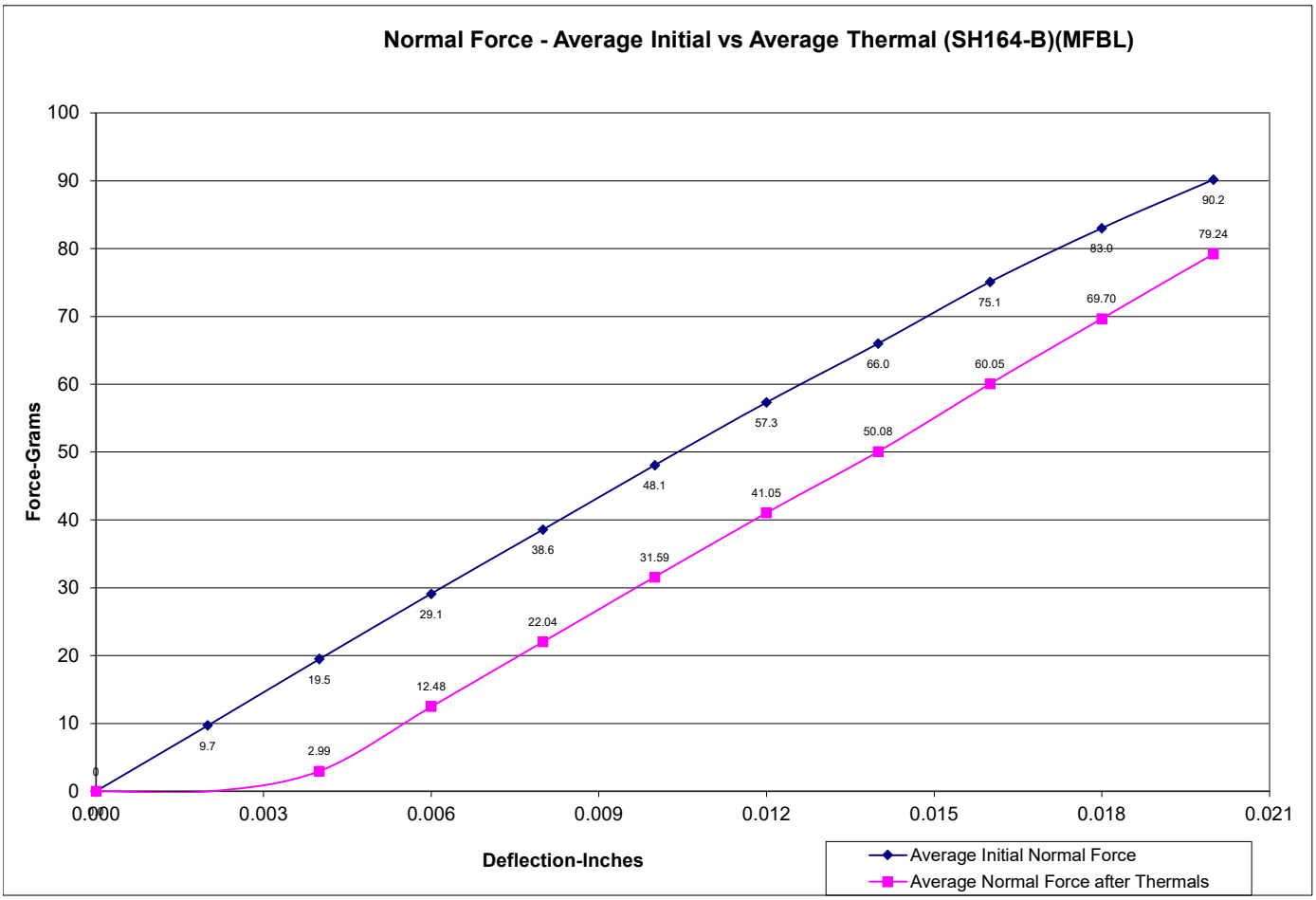


DATA SUMMARIES Continued

NVBM MFBL pin SH164-B

	Deflections in inches Forces in Grams										
Initial	**0.0020**	**0.0040**	**0.0060**	**0.0080**	**0.0100**	**0.0120**	**0.0140**	**0.0160**	**0.0180**	**0.0200**	***SET***
Averages	9.70	19.49	29.13	38.60	48.08	57.33	66.04	75.09	83.04	90.19	0.0008
Min	9.30	18.60	27.40	36.10	44.60	52.90	60.80	69.00	76.30	83.00	0.0003
Max	10.10	20.10	30.20	40.30	50.10	59.70	68.90	78.10	87.10	96.00	0.0011
St. Dev	0.256	0.610	1.182	1.663	2.238	2.832	3.331	3.879	4.250	4.647	0.0003
Count	8	8	8	8	8	8	8	8	8	8	8

After Thermals	Deflections in inches Forces in Grams										
	0.0020	**0.0040**	**0.0060**	**0.0080**	**0.0100**	**0.0120**	**0.0140**	**0.0160**	**0.0180**	**0.0200**	***SET***
Averages	-0.01	2.99	12.48	22.04	31.59	41.05	50.08	60.05	69.70	79.24	0.0035
Min	-0.10	0.70	9.20	18.20	28.20	38.20	47.40	57.20	66.70	75.70	0.0027
Max	0.00	6.90	16.20	25.70	35.10	44.00	53.50	64.00	74.00	84.10	0.0040
St. Dev	0.035	2.001	2.186	2.305	2.307	2.254	2.349	2.479	2.601	2.936	0.0004
Count	8	8	8	8	8	8	8	8	8	8	8



DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

	Pin to Pin 1		
	Mated	Unmated	Unmated
Minimum	**NVBM/NVBF**	**NVBM**	**NVBF**
Initial	9000	9000	9000
Thermal	9000	9000	9000
Humidity	9000	6300	9000

	Pin to Pin 2		
	Mated	Unmated	Unmated
Minimum	**NVBM/NVBF**	**NVBM**	**NVBF**
Initial	9000	9000	9000
Thermal	9000	9000	9000
Humidity	9000	9000	9000

	Row to Row		
	Mated	Unmated	Unmated
Minimum	**NVBM/NVBF**	**NVBM**	**NVBF**
Initial	9000	9000	9000
Thermal	9000	9000	9000
Humidity	9000	9000	9000

	Pin to Ground 1		
	Mated	Unmated	Unmated
Minimum	**NVBM/NVBF**	**NVBM**	**NVBF**
Initial	9000	9000	9000
Thermal	9000	9000	9000
Humidity	5700	5700	9000

	Pin to Ground 2		
	Mated	Unmated	Unmated
Minimum	**NVBM/NVBF**	**NVBM**	**NVBF**
Initial	9000	9000	9000
Thermal	9000	9000	9000
Humidity	9000	9000	9000

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**NVCF/NVBM**
Break Down Voltage	600
Test Voltage	450
Working Voltage	150

Pin to Pin 1	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

Pin to Pin 2	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

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

Pin to Ground 1	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

Pin to Ground 2	
Initial Test Voltage	Passed
After Thermal Test Voltage	Passed
After Humidity Test Voltage	Passed

DATA SUMMARIES Continued

LLCR Durability:

1) A total of 256 signals and 32 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 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

NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C

	LLCR Measurement Summaries by Pin Type			
Date	2025/5/12	2025/5/22	2025/6/2	2025/6/12
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	42	46	42	54
Technician	Tony Wagoner	Tony Wagoner	Tony Wagoner	Tony Wagoner
mOhm values	Actual **Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type: Signal 1			
Average	21.05	0.25	0.7	0.67
St. Dev.	4.6	0.23	0.5	0.59
Min	14	0	0	0
Max	27.81	1.36	3.64	3.31
Summary Count	256	256	256	256
Total Count	256	256	256	256
	Pin Type: GND 1			
Average	5.64	0.14	0.51	0.5
St. Dev.	1.04	0.12	0.34	0.23
Min	4.51	0	0.01	0.18
Max	6.93	0.56	1.35	1.09
Summary Count	32	32	32	32
Total Count	32	32	32	32

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**288**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**288**	**0**	**0**	**0**	**0**	**0**
Humidity	**288**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Durability:

1) A total of 1024 signals and 128 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 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

NVBM-DP-16-RA-S-2-B-A/NVBF-DP-16-VT-S-2-B-A

	LLCR Measurement Summaries by Pin Type			
Date	2025/8/18	2025/8/27	2025/9/10	2025/9/23
Room Temp (Deg C)	22	22	22	22
Rel Humidity (%)	56	42	45	57
Technician	Tony Wagoner	Tony Wagoner	Tony Wagoner	Tony Wagoner
mOhm values	Actual **Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type: Signal 1			
Average	22.4	0.34	0.35	0.39
St. Dev.	4.68	0.35	0.35	0.38
Min	14.26	0	0	0
Max	31.32	2.68	4.74	5.17
Summary Count	1024	1024	1024	1024
Total Count	1024	1024	1024	1024
	Pin Type: GND 1			
Average	8.1	0.21	0.2	0.2
St. Dev.	0.94	0.21	0.21	0.19
Min	6.5	0	0	0
Max	9.73	1.44	1.43	1.41
Summary Count	128	128	128	128
Total Count	128	128	128	128

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**1152**	**0**	**0**	**0**	**0**	**0**
Therm Shck	**1152**	**0**	**0**	**0**	**0**	**0**
Humidity	**1151**	**1**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Thermal Aging:

1) A total of 256 signals and 32 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 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

NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C

	LLCR Measurement Summaries by Pin Type	
Date	2025/5/12	2025/5/27
Room Temp (Deg C)	22	22
Rel Humidity (%)	42	42
Technician	Tony Wagoner	Tony Wagoner
mOhm values	Actual **Initial**	**Delta Thermal**
	Pin Type: Signal 1	
Average	20.92	2
St. Dev.	4.58	1.61
Min	13.75	0.13
Max	27.6	9.54
Summary Count	256	256
Total Count	256	256
	Pin Type: GND 1	
Average	5.62	0.94
St. Dev.	0.99	0.53
Min	4.51	0.32
Max	6.93	2.83
Summary Count	32	32
Total Count	32	32

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Thermal	**273**	**15**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Gas Tight:

1) A total of 160 signals and 32 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 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

NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C

	LLCR Measurement Summaries by Pin Type	
Date	2024/6/14	2024/6/20
Room Temp (Deg C)	22	22
Rel Humidity (%)	53	54
Technician	Richard Ison	Richard Ison
mOhm values	Actual **Initial**	**Delta Acid Vapor**
	Pin Type: Signal 1	
Average	20.97	0.4
St. Dev.	5.07	0.4
Min	14.18	0.01
Max	28.11	2.71
Summary Count	160	160
Total Count	160	160
	Pin Type: GND 1	
Average	5.74	0.08
St. Dev.	0.96	0.08
Min	4.1	0
Max	7.19	0.39
Summary Count	32	32
Total Count	32	32

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Acid Vapor	**192**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Shock & Vibration:

1). A total of 256 signals and 32 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 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

NVBM-DP-04-RA-S-2-B-C/NVBF-DP-04-VT-S-2-B-C

	LLCR Measurement Summaries by Pin Type	
Date	2025/5/16	2025/5/19
Room Temp (Deg C)	22	22
Rel Humidity (%)	43	47
Technician	Tony Wagoner	Tony Wagoner
mOhm values	Actual **Initial**	**Delta Shock-Vib**
	Pin Type: Signal 1	
Average	20.91	0.59
St. Dev.	4.58	1.3
Min	13.72	0
Max	28.2	9.78
Summary Count	256	256
Total Count	256	256
	Pin Type: GND 1	
Average	5.55	0.15
St. Dev.	0.98	0.15
Min	4.44	0.01
Max	6.96	0.62
Summary Count	32	32
Total Count	32	32

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Shock-Vib	**279**	**9**	**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 #: 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: 09/11/2025, Next Cal: 09/11/2026

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 #: THC-05
Description: Temperature/Humidity Chamber (Chamber Room)
Manufacturer: Thermotron
Model: SM-8-3800
Serial #: 05 23 00 02
Accuracy: See Manual
… Last Cal: 11/14/2025, Next Cal: 11/14/2026

Equipment #: OV-05
Description: Forced Air Oven, 5 Cu. Ft., 120 V (Chamber Room)
Manufacturer: Sheldon Mfg.
Model: CE5F
Serial #: 02008008
Accuracy: +/- 5 deg. C
… Last Cal: 02/03/2025, Next Cal: 02/03/2026

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 AND CALIBRATION SCHEDULES

Equipment #: PS-02
Description: Power Supply
Manufacturer: Hewlett-Packer
Model: 6033A
Serial #: N/A
Accuracy: See Manual
… Last Cal: CALIBRATION NOT REQUIRED.

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 09/11/2025, Next Cal: 09/11/2026

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: 352C03
Serial #: 115819
Accuracy: See Manual
… Last Cal: 07/18/2025, Next Cal: 07/18/2026

Equipment #: ED-03
Description: Event Detector
Manufacturer: Analysis Tech
Model: 32EHD
Serial #: 1100604
Accuracy: See Manual
… Last Cal: 10/31/2025, Next Cal: 10/31/2026