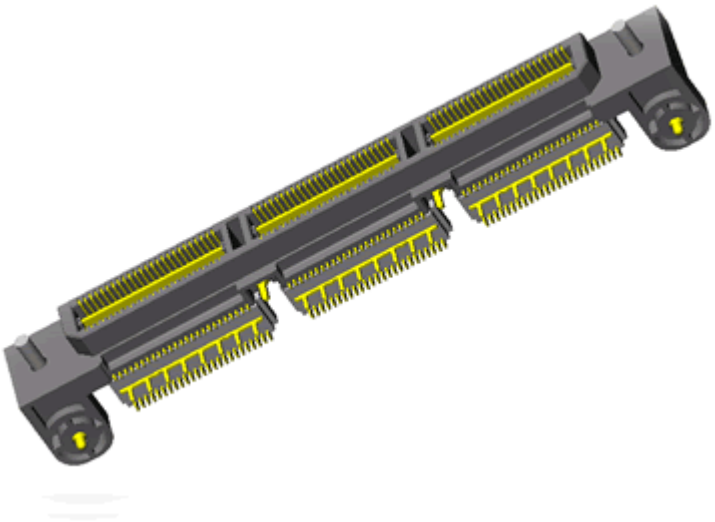
Project Number: NA	Tracking Code: TC0251--0065		
Requested by: Ed Messer	Date: 12/20/02	Product Rev: 1	
Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA	Lot #: 778126	Tech: Troy Cook	Eng: John Tozier
Part description: QTS/QSS RA			Qty to test: 75
Test Start: 01/02/03	Test Completed: 2/3/03		



DVT Summary Report

PART DESCRIPTION

QTS-100-01-L-D-RA/QSS-100-01-L-D-RA

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.

SCOPE

To perform the following tests: DVT reference TC0239--0756/TC0239-NA-0013

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 testing were cleaned according to TLWI-0001:
   a) Sample test boards are to be ultrasonically cleaned after test lead attachment, preparation and/or soldering using the following process.
   b) Sample test boards are immersed into Branson 3510 cleaner containing Kyzen Ionox HC1 (or equivalent) with the following conditions:
      i) Temperature: ----------55° C+/- 5° C
      ii) Frequency:----------40 KHz
      iii) Immersion Time: ----------5 to 10 Minutes
      iv) Sample test boards are removed and placed into the Branson 3510 cleaner containing deionized water with the following conditions:
      v) Temperature: ----------55° C +/- 5° C
      vi) Frequency:----------40 KHz
      vii) Immersion Time: ----------5 to 10 Minutes
      viii) Sample test boards are removed and placed in a beaker positioned on a hot plate with a magnetic stirrer containing deionized water warmed to 55° C +/- 5° C for 1/2 to 1 minute
   c) Upon removal, the sample test boards are rinsed for 1/2 to 1 minute in room temperature free flowing deionized water.
   d) After the final rinse, the sample test boards are dried in an air-circulating oven for 10 to 15 minutes at 50° C +/- 5° C
   e) Sample test boards are then allowed to set and recover to room ambient condition prior to testing.
4) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
5) Any additional preparation will be noted in the individual test procedures.

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Part description: QTS/QSS RA	

FLOWCHARTS

TEST STEP	GROUP A 1 board min
	6 Contacts in series, clustered if possible

Tabulate calculated current at RT, 75° C, 85° C and 95° C
after derating 20% and based on 125 ° C
CCC, Temp rise = EIA-364-70

TEST STEP	GROUP 1a 10 Boards	GROUP 1b Individual Contacts (30) min
01	Contact Gaps	Normal Force
02	Mating / Unmating	Data Review
03	Data Review	Thermal Aging (Mated)
04	100 Cycles	Normal Force
05	Mating / Unmating	
06	Contact Gaps	
07	Data Review	
08	Thermal Aging (Mated)	
09	Mating / Unmating	
10	Contact Gaps	
11	Data Review	
12	Humidity (Mated)	
13	Contact Gaps	
14	Mating / Unmating	

Thermal Aging = EIA-364-17, Test Condition 4,
Time Condition 'B' for 250 hours, 105 deg C;
Humidity =EIA-364-31, Test Condition B (240 Hours)
Method III (+25° C to +65° C @ 90%RH to 98% RH)
delete steps 7a and 7b
Mating/Un-Mating Forces = EIA-364-13
Normal Force = EIA-364-04
Contact Gaps/Height -
No standard method. Usually measured optically

FLOWCHARTS Continued

TEST STEP	GROUP 1 2 Boards Ambient	GROUP 2A 2 Boards Ambient	GROUP 2b 2 Boards Thermal	GROUP 2c 2 Boards Humidity
01	IR	DWV/Working Voltage	Thermal Aging	Humidity
02	Thermal Aging		DWV/Working Voltage	DWV/Working Voltage
03	IR			
04	Data Review			
05	Humidity			
06	IR			

Thermal Aging = EIA-364-17, Test Condition 4,
Time Condition 'B' for 250 hours, 105 deg C;
Humidity =EIA-364-31, Test Condition B (240 Hours)
Method III (+25° C to +65° C @ 90%RH to 98% RH)
delete steps 7a and 7b

TEST STEP	GROUP A 200 Points, 4 boards
01	LLCR
02	Data Review
03	100 Cycles durability
04	LLCR
05	Data Review
06	Thermal Age
07	LLCR
08	Data Review
09	Cyclic Humidity
10	LLCR

Thermal Aging = EIA-364-17, Test Condition 4,
Time Condition 'B' for 250 hours, 105 deg C;
Humidity =EIA-364-31, Test Condition B (240 Hours)
Method III (+25° C to +65° C @ 90%RH to 98% RH)
delete steps 7a and 7b
Keithley 580 in the dry circuit mode, 10 mA Max

FLOWCHARTS Continued

TEST STEP	GROUP A 200 Points
01	LLCR
02	Gas Tight
03	LLCR

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

Keithley 580 in the dry circuit mode, 10 mA Max

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

ATTRIBUTE DEFINITION

Following is a brief, simplified description of attributes.

THERMAL AGING:

1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors.*
   a) Test Condition 4 at 105° C.
   b) Test Time Condition B for 250 hours.
2) Connectors are mated.

CYCLIC HUMIDITY:

1) Reference document: EIA-364-31, *Humidity Test Procedure for Electrical Connectors.*
   a) Test Condition B, 240 Hours.
   b) Method III, +25° C to + 65° C, 90% to 95% Relative Humidity excluding sub-cycles 7a and 7b.
2) Connectors are mated.

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 three temperature points are reported:
   a) Ambient
   b) $60\ ^{o}$ C
   c) $75\ ^{o}$ C
   d) $80\ ^{o}$ C
8) Typically, neighboring contacts (in close proximity to maximize heat build up) 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.

CONTACT GAPS:

1) Gaps between the contacts were measured before and after stressing the contacts (e.g. thermal aging, mechanical cycling, etc.).
2) Typically, all contacts on the connector are measured.

ATTRIBUTE DEFINITION Continued

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.

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 shall 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 print out will be stored with the Tracking Code paperwork.

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
      ii) Mated or
      iii) Mounted or
      iv) Rate of Application 500 V/Sec
      v) 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 DEFINITION Continued

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
      ii) Mated or
      iii) Mounted or
      iv) Electrification Time 2.0 minutes
      v) Test Voltage (VDC) corresponding to calibration settings for measuring resistances
2) MEASUREMENTS:
   a) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 5000 megOhms.

LLCR:

1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
   a) <= +5.0 mOhms: ---------- Stable
   b) +5.1 to +10.0 mOhms:---------- Minor
   c) +10.1 to +15.0 mOhms: ---------- Acceptable
   d) +15.1 to +50.0 mOhms: ---------- Marginal
   e) +50.1 to +2000 mOhms: ---------- Unstable
   f) >+2000 mOhms:---------- Open Failure

ATTRIBUTE DEFINITION Continued

GAS TIGHT:

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

1) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
   a) <= +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 +2000 mOhms: ---------- Unstable
   f) >+2000 mOhms:---------- Open Failure
4) Procedure:

a) Reference document: EIA-364-36, *Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems.*

b) Test Conditions:
   i) Class II--- Mated pairs of contacts assembled to their plastic housings.
   ii) Reagent grade Nitric Acid shall be used of sufficient volume to saturate the test chamber
   iii) The ratio of the volume of the test chamber to the surface area of the acid shall be less than 10.
   iv) The chamber shall be saturated with the vapor for at least 15 minutes before samples are added.
   v) Exposure time – 55 to 65 minutes.
   vi) The samples shall be no closer to the chamber walls than 1 inches and no closer to the surface of the acid than 3 inches.
   vii) The samples shall be dried after exposure for a minimum of 1 hour.
   viii) Drying temperature 50 ^{o} C
   ix) The final LLCR shall be conducted within 1 hour after drying.

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Part description: QTS/QSS RA	

RESULTS

Temperature Rise, CCC

- **At 95°C, relative to 125°C**
  - **Inner Row ----------1.2 A at 20% de-rated with 6 adjacent conductors powered**
  - **Outer Row----------1.3 A at 20% de-rated with 6 adjacent conductors powered**
  - **Row – Row----------1.5 A at 20% de-rated with 6 conductors powered (3 each Row)**

Contact Gaps

- **Initial**
  - **Min---------- 0.1675”**
  - **Max ---------- 0.1710”**
- **After 100 Cycles**
  - **Min---------- 0.1654”**
  - **Max ---------- 0.1692”**
- **Thermal**
  - **Min---------- 0.1629”**
  - **Max ---------- 0.1669”**
- **Humidity**
  - **Min---------- 0.1629”**
  - **Max ---------- 0.1667”**

Mating – Unmating Forces

- **Initial**
  - **Mating**
    - **Min ----------19.86 lbs**
    - **Max----------23.32 lbs**
  - **Unmating**
    - **Min ---------- 8.78 lbs**
    - **Max----------10.92 lbs**
- **After 100 Cycles**
  - **Mating**
    - **Min ----------19.34 lbs**
    - **Max----------23.10 lbs**
  - **Unmating**
    - **Min ---------- 9.66 lbs**
    - **Max----------14.16 lbs**
- **Thermal**
  - **Mating**
    - **Min ---------- 9.72 lbs**
    - **Max----------13.66 lbs**
  - **Unmating**
    - **Min ---------- 5.84 lbs**
    - **Max----------10.90 lbs**
- **Humidity**
  - **Mating**
    - **Min ---------- 9.10 lbs**
    - **Max----------13.46 lbs**
  - **Unmating**
    - **Min ---------- 5.20 lbs**
    - **Max---------- 7.56 lbs**

RESULTS Continued

Normal Force at 0.008" Deflection

- **Initial**
  - **Min**
    - **Top ----------93.13 gr Set ------0.0010"**
    - **Bottom ----------94.90 gr Set ------0.0011"**
  - **Max**
    - **Top ----------99.94 gr Set ------0.0017"**
    - **Bottom ---------- 100.80 gr Set ------0.0014"**
- **Thermal**
  - **Min**
    - **Top ---------- 100.80 gr**
    - **Bottom ---------- 103.80 gr**
  - **Max**
    - **Top ---------- 108.20 gr**
    - **Bottom ---------- 106.70 gr**

Dielectric Withstanding Voltage minimums, DWV

- **Initial**
  - **Breakdown**
    - **Top ---------- 1350 VAC**
    - **Bottom ---------- 1350 VAC**
  - **DWV**
    - **Top ---------- 1013 VAC**
    - **Bottom ---------- 1013 VAC**
  - **Working voltage**
    - **Top ----------338 VAC**
    - **Bottom ----------338 VAC**
- **Thermal**
  - **Breakdown**
    - **Top ---------- 1100 VAC**
    - **Bottom ---------- 1200 VAC**
  - **DWV**
    - **Top ----------825 VAC**
    - **Bottom ----------900 VAC**
  - **Working voltage**
    - **Top ----------275 VAC**
    - **Bottom ----------300 VAC**
- **Humidity**
  - **Breakdown**
    - **Top ---------- 1200 VAC**
    - **Bottom ---------- 1250 VAC**
  - **DWV**
    - **Top ----------900 VAC**
    - **Bottom ----------938 VAC**
  - **Working voltage**
    - **Top ----------300 VAC**
    - **Bottom ----------313 VAC**

RESULTS Continued

Insulation Resistance minimums, IR
(Inner to Outer Rows (wire – to – adjacent wire)

- **Initial**
  - **Top ---------- 15,000 Meg Ω ---------- Pass**
  - **Bottom ---------- 25,000 Meg Ω ---------- Pass**
- **Thermal**
  - **Top ---------- 100000 Meg Ω**
  - **Bottom ---------- 100000 Meg Ω**
- **Humidity**
  - **Top ---------- 100000 Meg Ω**
  - **Bottom ---------- 100000 Meg Ω**

LLCR Durability (199 LLCR test points)

- **Initial ---------- 40.0 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ---------- 199 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 +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 196 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 1 Point ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

- **Humidity**
  - **<= +5.0 mOhms ---------- 189 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 10 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Gas Tight (200 LLCR test points)

- **Initial ---------- 55.1 mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 200 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 +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

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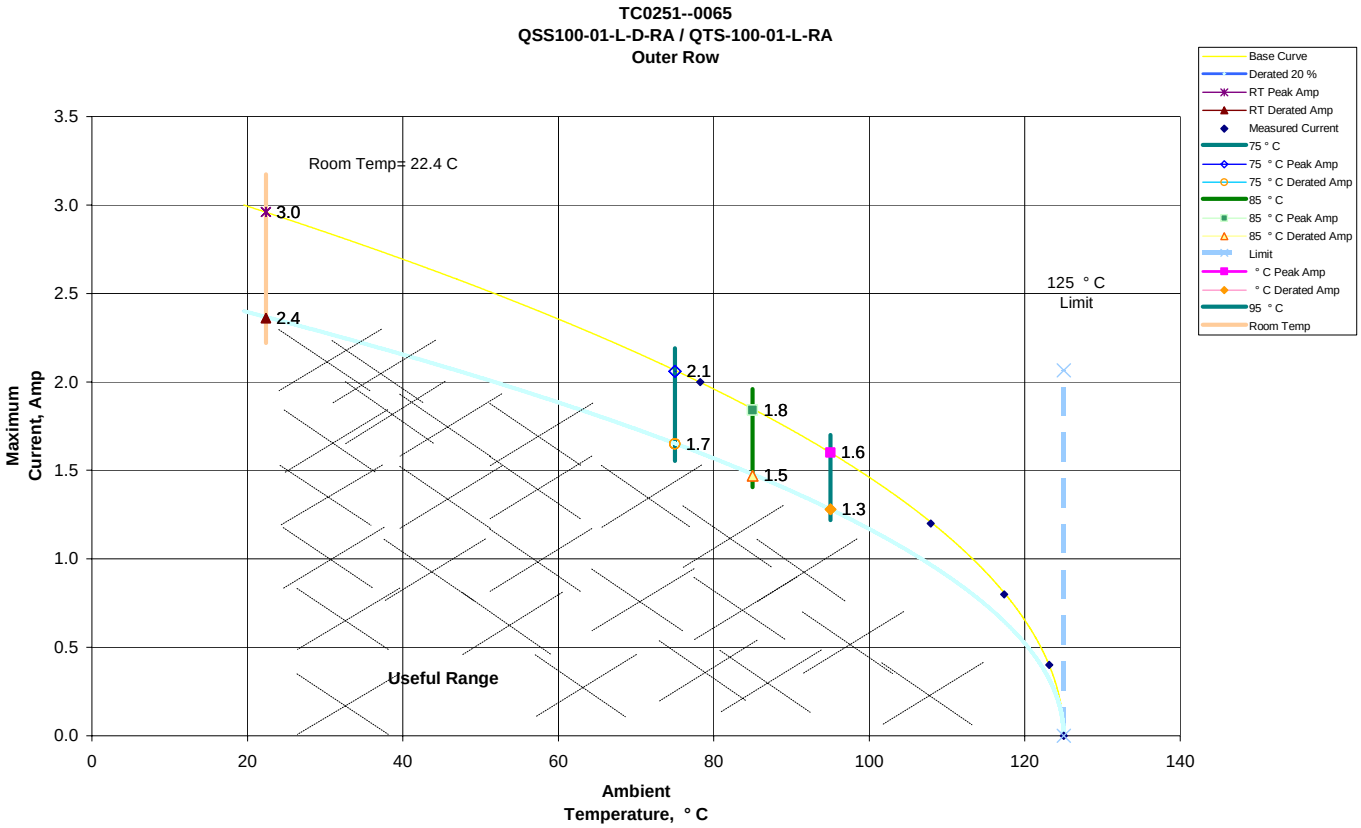
Part description: QTS/QSS RA	

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) Six adjacent contacts were powered:
   a) Linear configuration
      i) Outer Row
      ii) Inner Row
   b) Clustered configuration
      i) Row-Row



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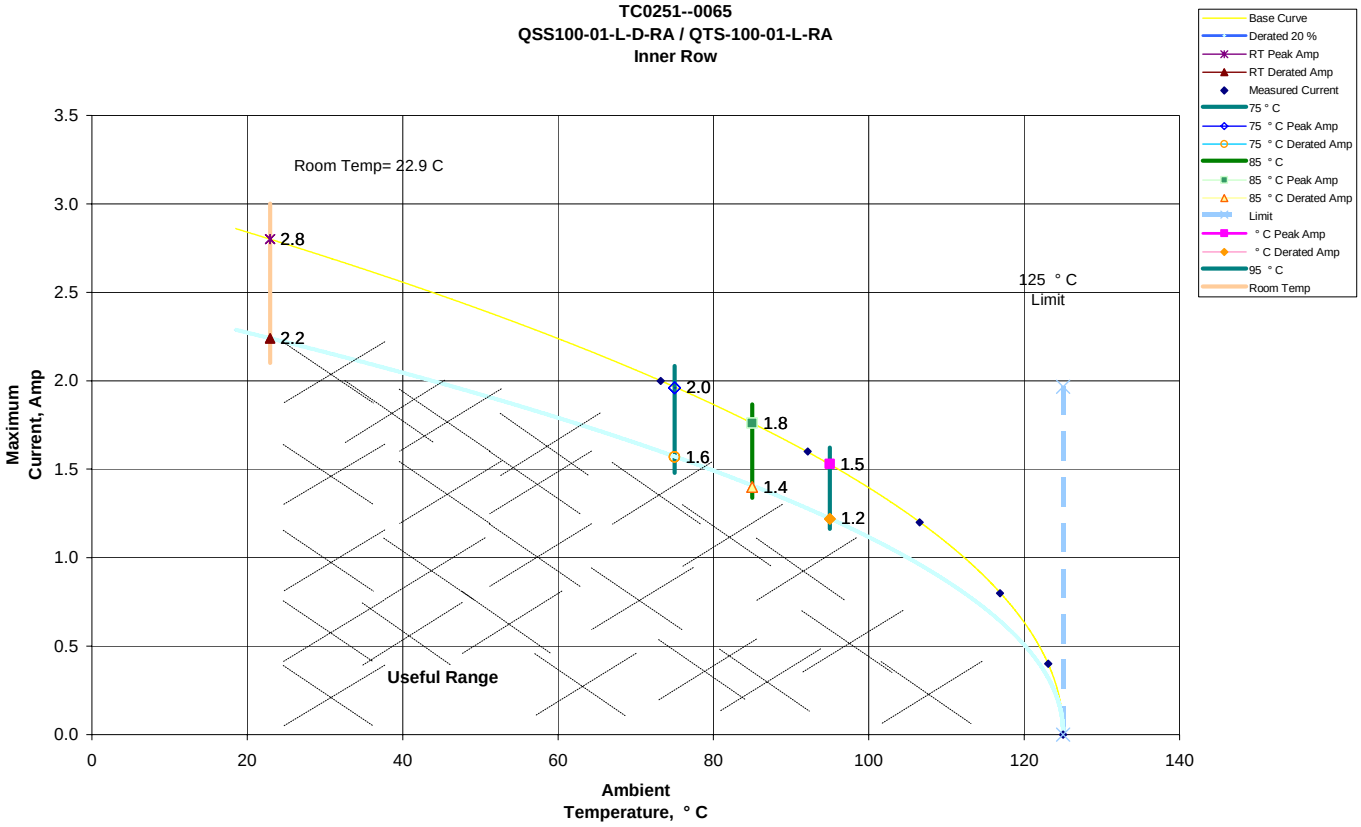
DATA SUMMARIES Continued



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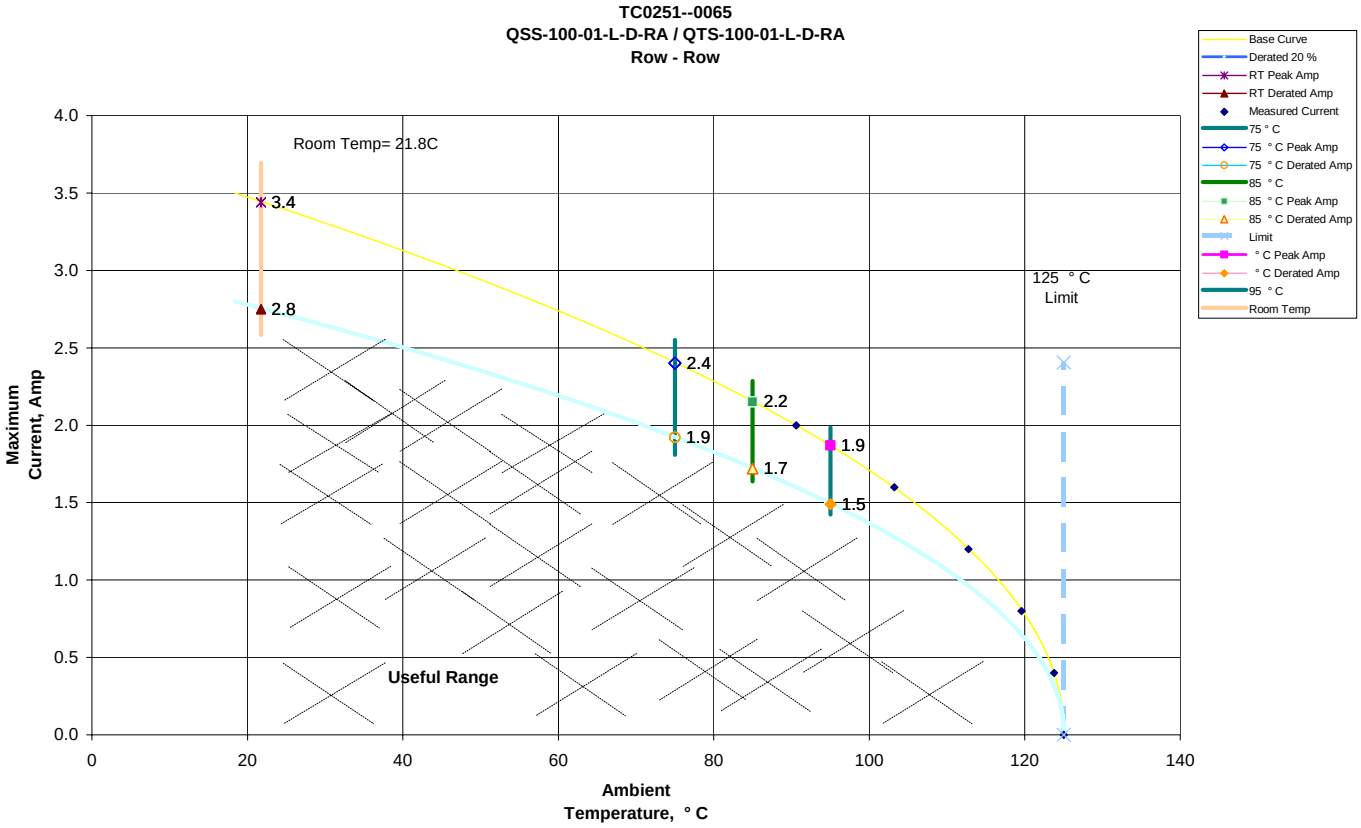
DATA SUMMARIES Continued



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DATA SUMMARIES Continued

CONTACT GAPS:

Initial

Measurements in inches

	B1		B2		B3		B4		B5	
Minimum	0.1680		0.1675		0.1677		0.1676		0.1678	
Maximum	0.1705		0.1705		0.1709		0.1708		0.1710	
Average	*0.1697*		*0.1694*		*0.1697*		*0.1696*		*0.1699*	
St. Dev.	*0.0005*		*0.0006*		*0.0006*		*0.0005*		*0.0006*	
Count	*52*		*52*		*52*		*52*		*52*	

Mating

Measurements in inches

	B1		B2		B3		B4		B5	
Minimum	0.1654		0.1658		0.1658		0.1656		0.1660	
Maximum	0.1690		0.1689		0.1688		0.1692		0.1691	
Average	*0.1679*		*0.1679*		*0.1678*		*0.1678*		*0.1682*	
St. Dev.	*0.0008*		*0.0007*		*0.0008*		*0.0008*		*0.0008*	
Count	*52*		*52*		*52*		*52*		*52*	

Thermals

Measurements in inches

	B1		B2		B3		B4		B5	
Minimum	0.1629		0.1631		0.1631		0.1630		0.1634	
Maximum	0.1667		0.1662		0.1665		0.1666		0.1669	
Average	*0.1655*		*0.1652*		*0.1653*		*0.1652*		*0.1656*	
St. Dev.	*0.0010*		*0.0009*		*0.0010*		*0.0010*		*0.0010*	
Count	*52*		*52*		*52*		*52*		*52*	

Humidity

Measurements in inches

	B1		B2		B3		B4		B5	
Minimum	0.1631		0.1630		0.1629		0.1629		0.1634	
Maximum	0.1664		0.1661		0.1662		0.1666		0.1667	
Average	*0.1654*		*0.1651*		*0.1652*		*0.1652*		*0.1655*	
St. Dev.	*0.0009*		*0.0009*		*0.0010*		*0.0010*		*0.0010*	
Count	*52*		*52*		*52*		*52*		*52*	

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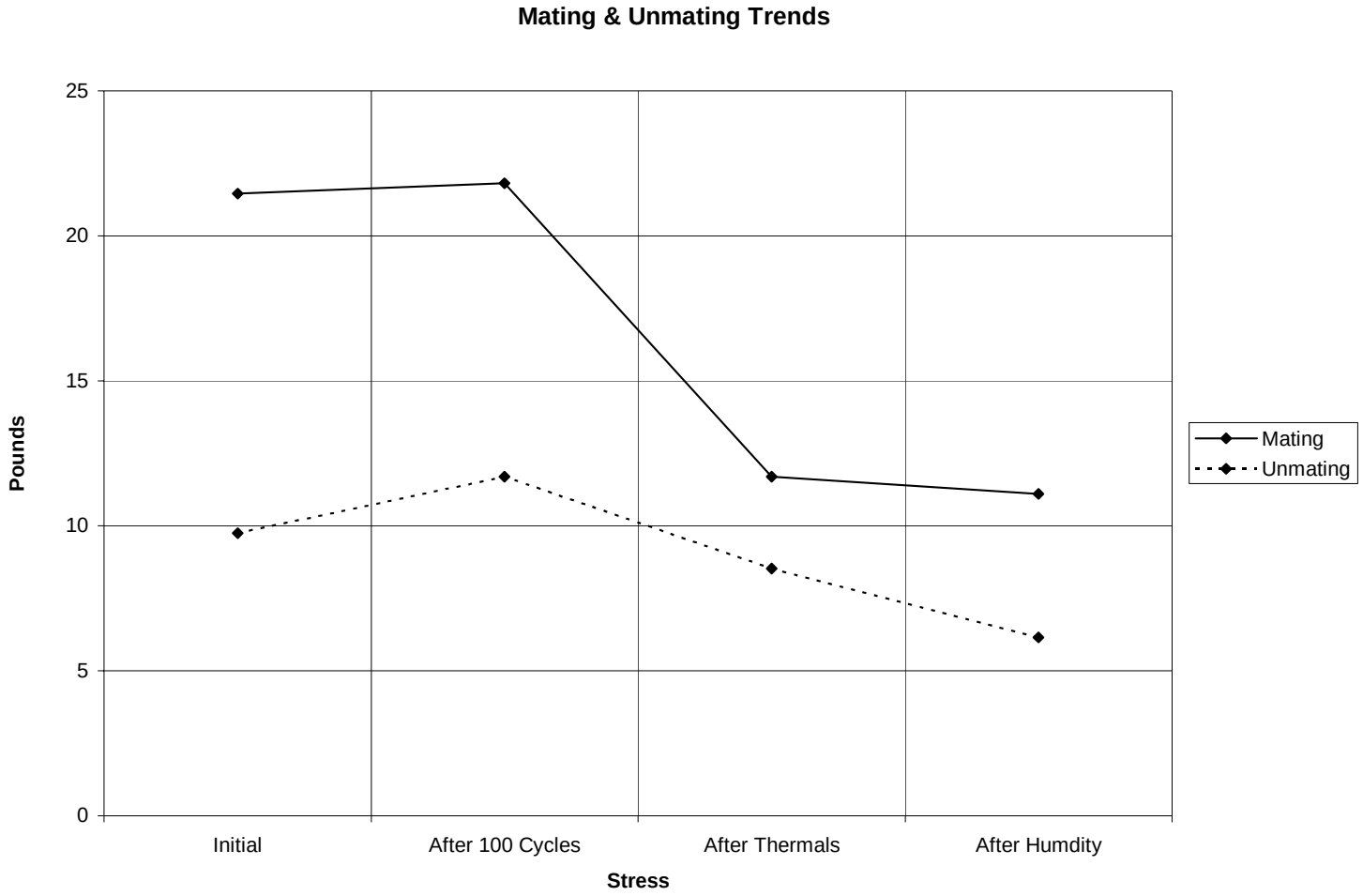
DATA SUMMARIES Continued

MATING/UNMATING:

	Initial				After 100 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	317.76	19.86	140.48	8.78	309.44	19.34	154.56	9.66
Maximum	*373.12*	*23.32*	*174.72*	*10.92*	*369.60*	*23.10*	*226.56*	*14.16*
Average	***343.33***	***21.46***	***155.90***	***9.74***	***348.99***	***21.81***	***187.20***	***11.70***
	After Thermals				After Humidity			
	Mating		**Unmating**		**Mating**		**Unmating**	
	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
Minimum	155.52	9.72	93.44	5.84	145.60	9.10	83.20	5.20
Maximum	*218.56*	*13.66*	*174.40*	*10.90*	*215.36*	*13.46*	*120.96*	*7.56*
Average	***187.14***	***11.70***	***136.32***	***8.52***	***177.50***	***11.09***	***98.40***	***6.15***



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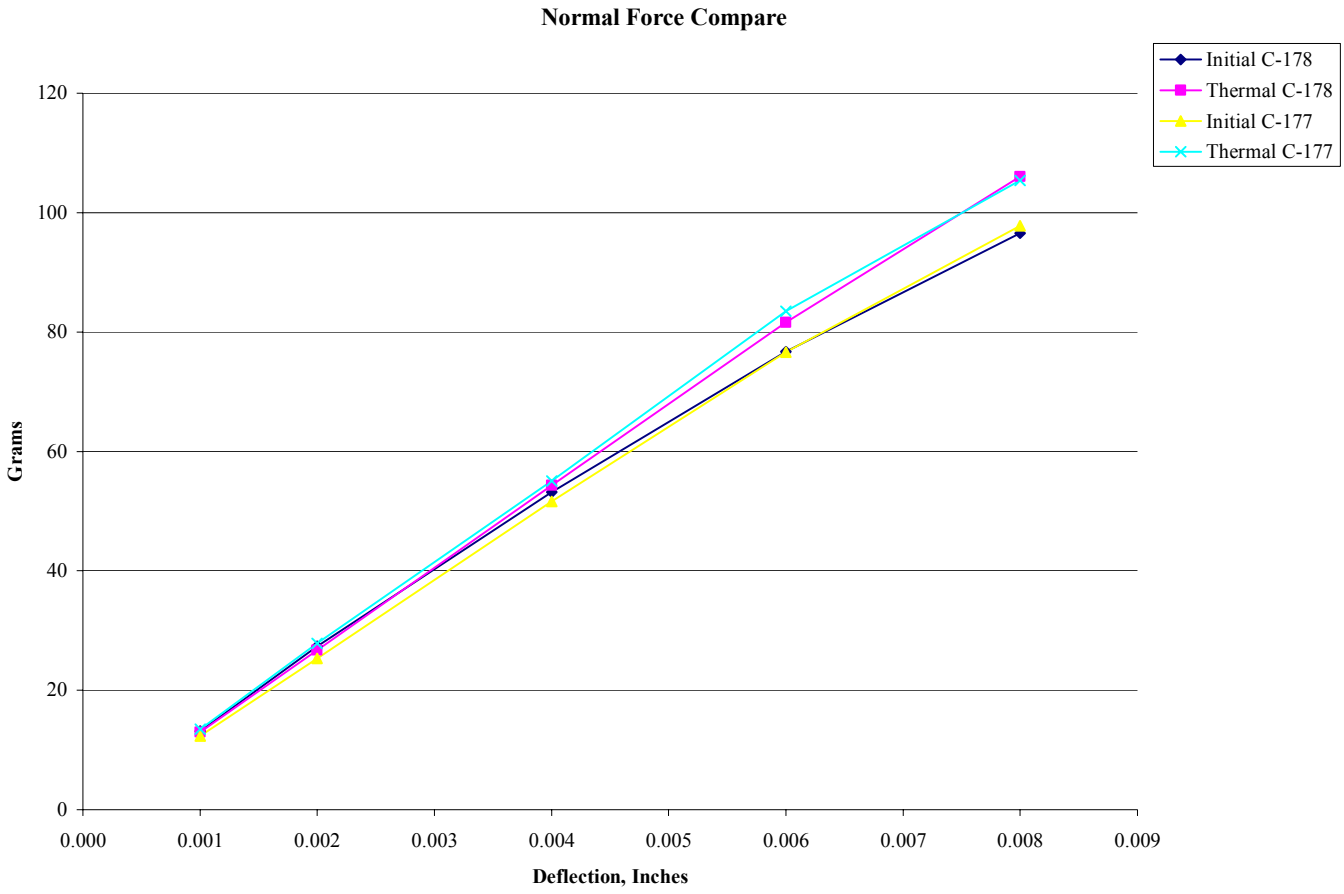
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

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



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

INITIAL
Top **Deflections in inches Forces in Grams**

	0.001	0.002	0.004	0.006	0.008	*SET*
Averages	13.12	27.35	53.19	76.72	96.58	0.0013
Min	11.49	24.96	49.85	72.84	93.13	0.0010
Max	15.43	29.22	55.16	80.24	99.94	0.0017
St. Dev	1.30	1.69	1.77	2.29	2.39	0.0003
Count	8	8	8	8	8	8

THERMAL
Top **Deflections in inches, Forces in Grams**

	0.001	0.002	0.004	0.006	0.008
Averages	13.01	26.69	54.30	81.61	106.06
Min	9.85	21.34	48.60	74.21	100.80
Max	14.69	29.73	57.04	85.61	108.20
St. Dev	2.23	3.27	3.39	4.52	3.06
Count	5	5	5	5	5

INITIAL
Bottom **Deflections in inches Forces in Grams**

	0.001	0.002	0.004	0.006	0.008	*SET*
Averages	12.35	25.30	51.63	76.61	97.75	0.0013
Min	9.85	22.33	46.96	71.58	94.90	0.0011
Max	14.12	27.58	53.52	80.12	100.80	0.0014
St. Dev	1.43	1.69	2.17	2.82	2.05	0.0001
Count	8	8	8	8	8	8

THERMAL
Bottom **Deflections in inches, Forces in Grams**

	0.001	0.002	0.004	0.006	0.008
Averages	13.44	27.82	55.03	83.51	105.34
Min	12.48	26.60	51.55	81.10	103.80
Max	15.04	29.37	58.39	85.61	106.70
St. Dev	0.99	1.15	2.52	1.98	1.32
Count	5	5	5	5	5

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Rate Of Applied Voltage Test Voltage *500 V Per Sec.* *Until Breakdown Occurs*

Values in VAC

	Initial					
	Bottom Row			Top Row		
Average	1375	1031	344	1350	1013	338
Min	1350	1013	338	1350	1013	338
Max	1400	1050	350	1350	1013	338

Rate Of Applied Voltage Test Voltage *500 V Per Sec.* *Until Breakdown Occurs*

Values in VAC

	Thermal					
	Bottom Row			Top Row		
Average	1250	938	313	1200	900	300
Min	1200	900	300	1100	825	275
Max	1300	975	325	1300	975	325

Rate Of Applied Voltage Test Voltage *500 V Per Sec.* *Until Breakdown Occurs*

Values in VAC

	Humidity					
	Bottom Row			Top Row		
Average	1300	975	325	1300	975	325
Min	1300	975	325	1300	975	325
Max	1300	975	325	1300	975	325

DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

Values in Mohms

Initial

	Electrification Time	*Two (2) minutes*
Average	25000	20000
Min	25000	15000
Max	25000	25000

Values in Mohms

Thermal

	Electrification Time	*Two (2) minutes*
Average	100000	100000
Min	100000	100000
Max	100000	100000

Values in Mohms

Humidity

	Electrification Time	*Two (2) minutes*
Average	100000	100000
Min	100000	100000
Max	100000	100000

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

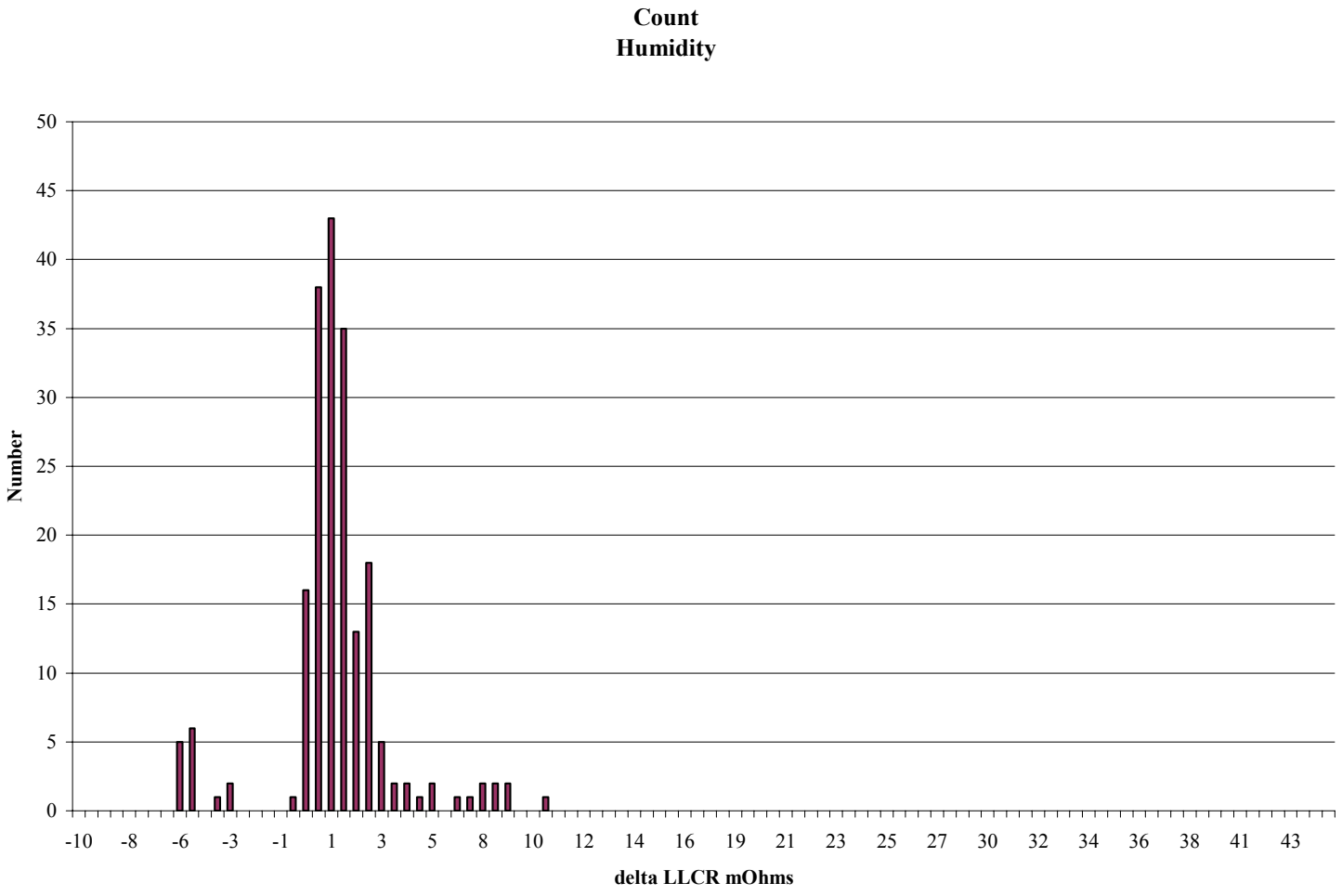
DATA SUMMARIES Continued

LLCR:

1) A total of 200* points were measured (P1 on Board #2 had defective solder joint).
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 +2000 mOhms ---------- Unstable
   f) >+2000 mOhms:---------- Open Failure

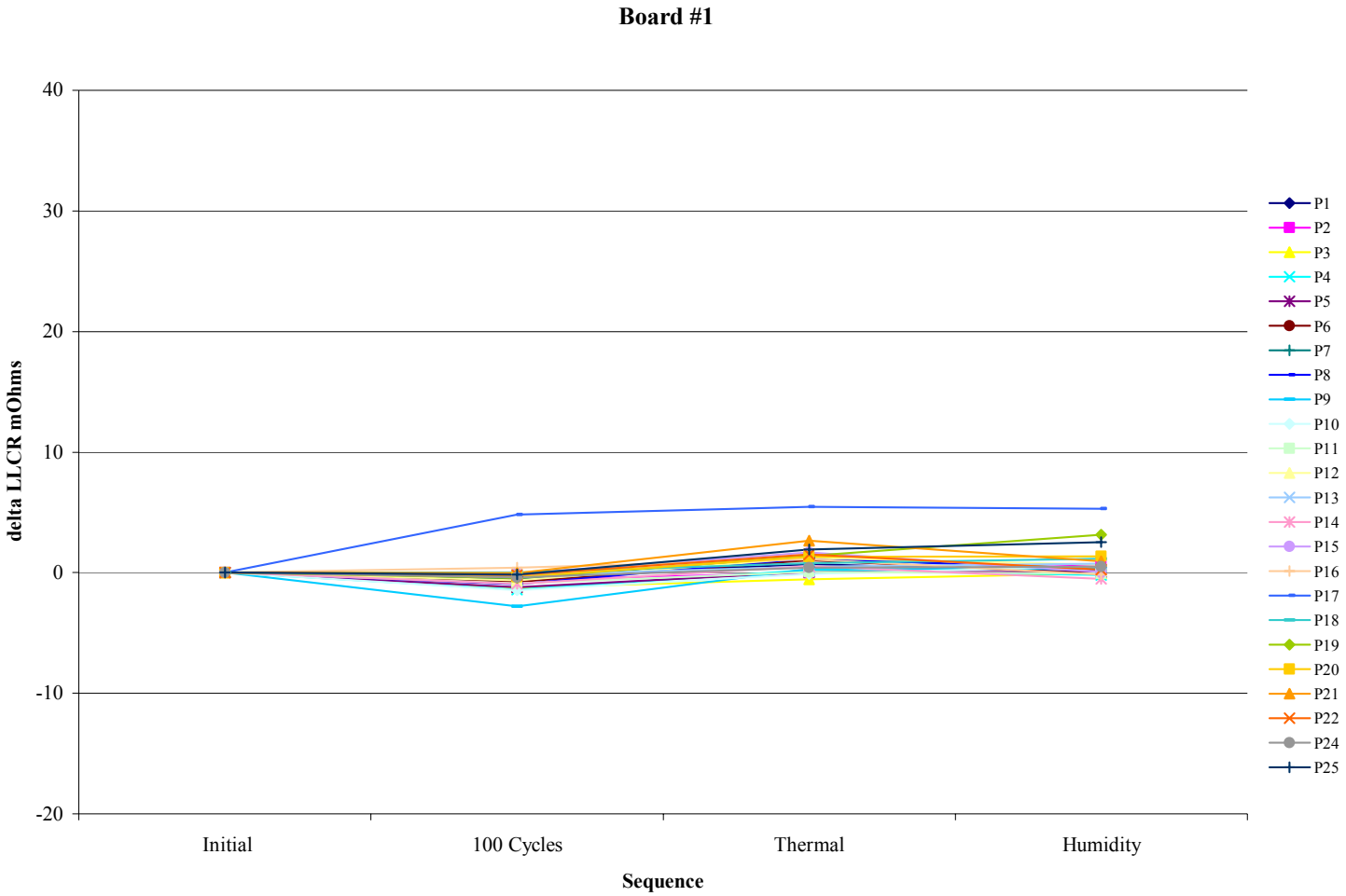
* P1 on Board #2 had defective solder joint that opened up during 100 cycle durability phase (Soldering defect)

mOhm values	Actual Initial	Delta 100 Cycles	Delta Thermal	Delta Humidity
Average	36.8	0.1	1.1	0.9
St. Dev.	2.9	0.9	2.0	2.4
Min	31.2	-2.8	-2.3	-6.1
Max	40.0	4.8	23.3	9.9
Count	199	199	199	199



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

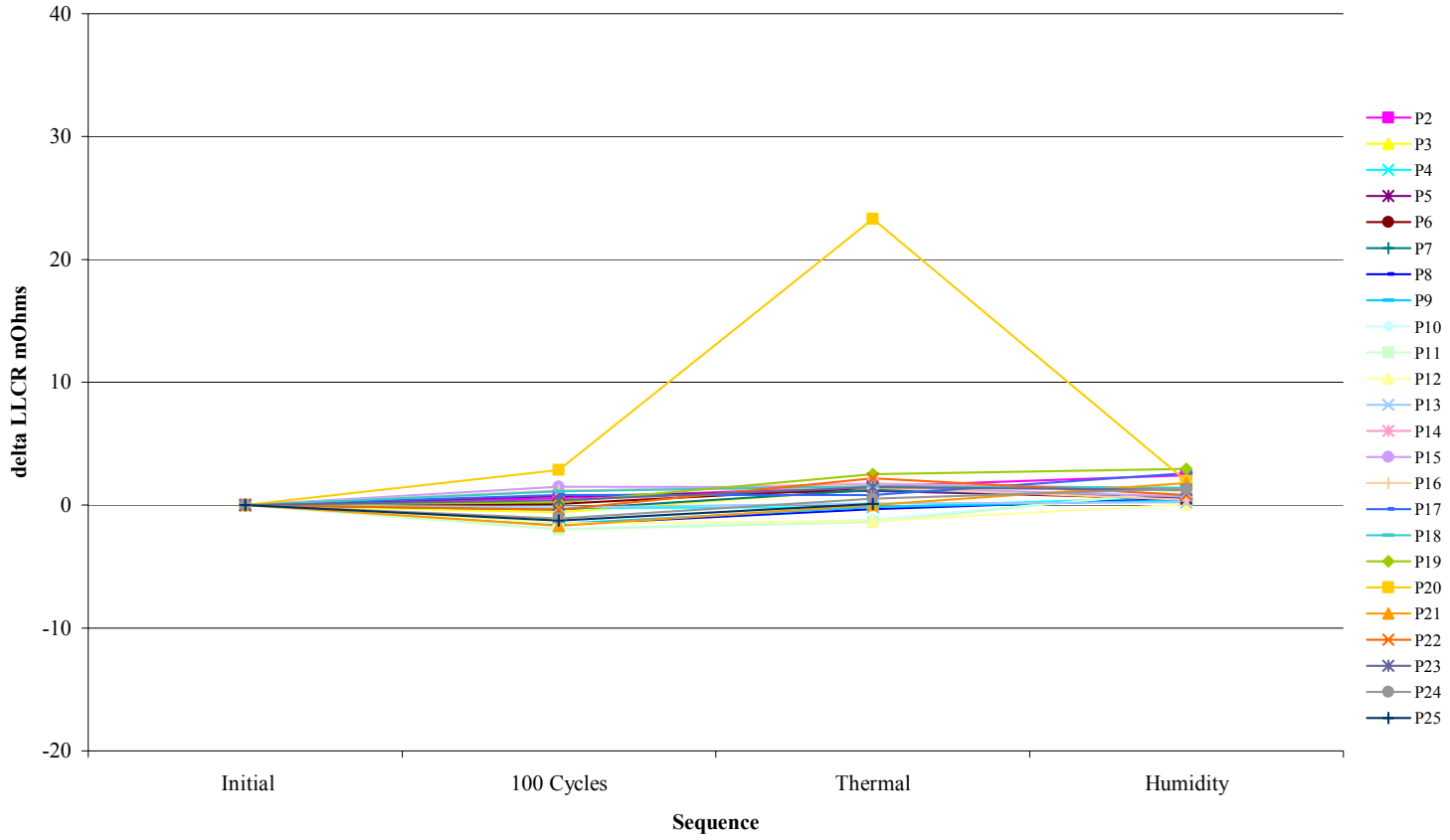
DATA SUMMARIES Continued



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

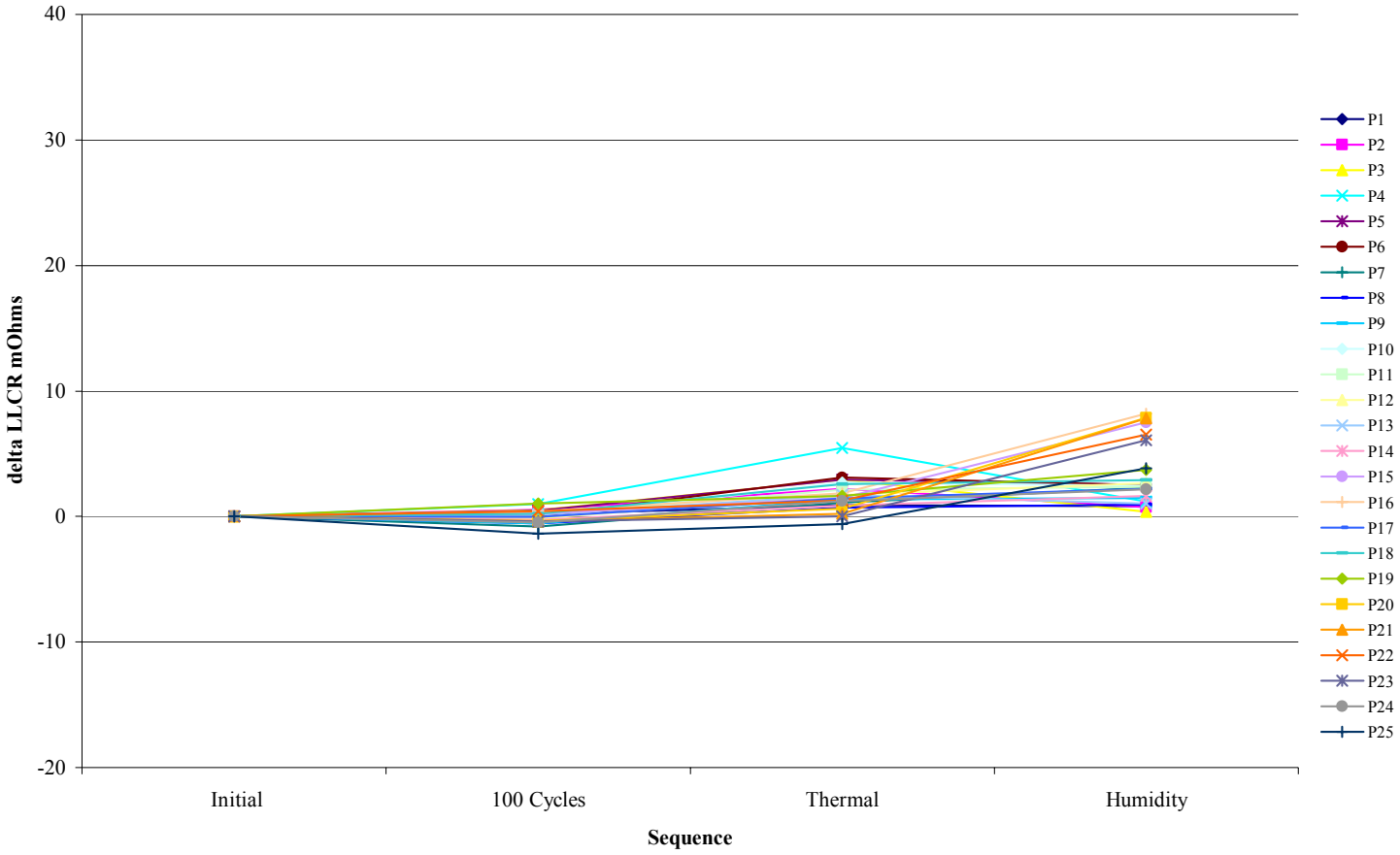
Board #2
Solder Joint Defective on P1 durind 100 cycle Durability Phase



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

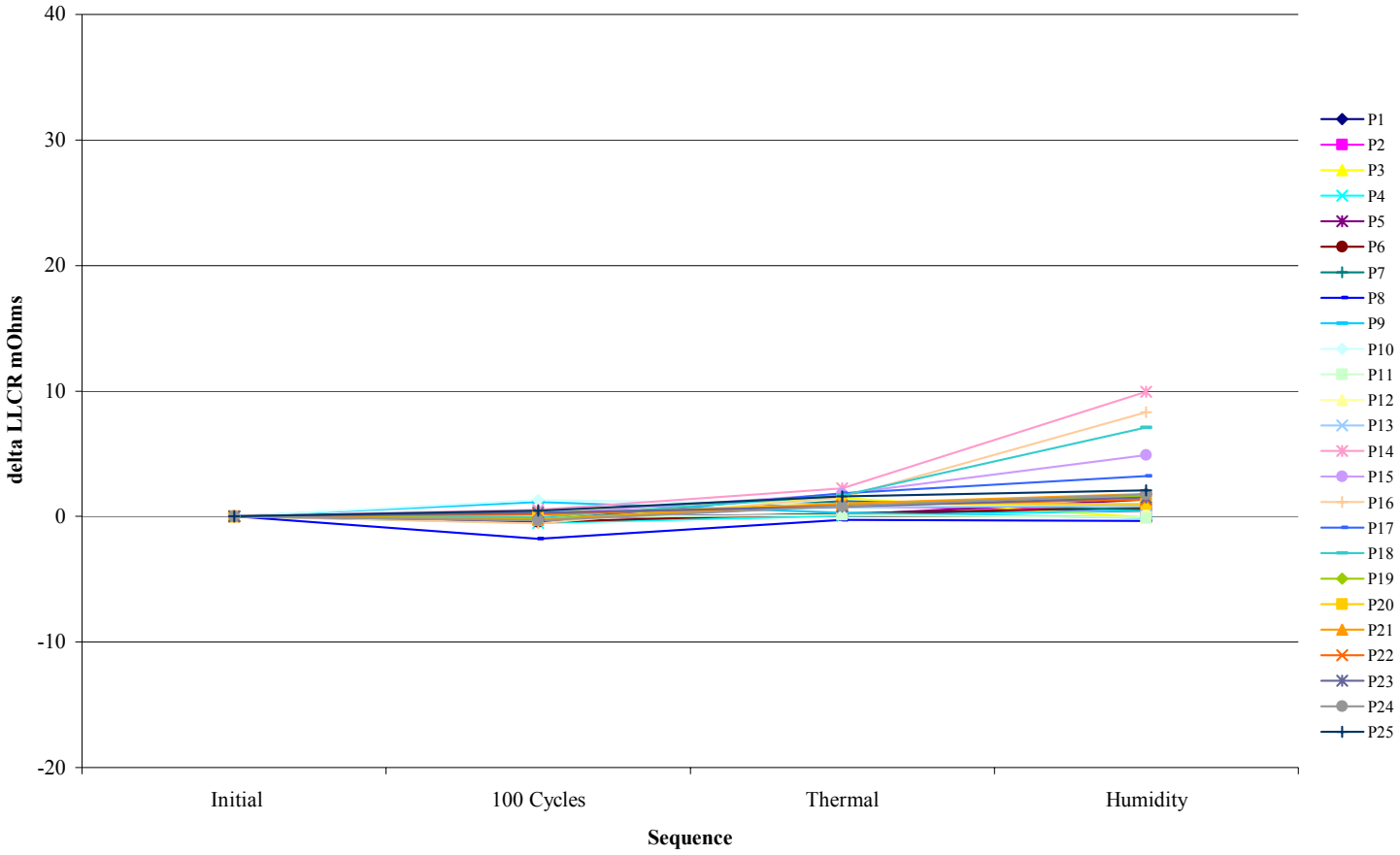
Board #3



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

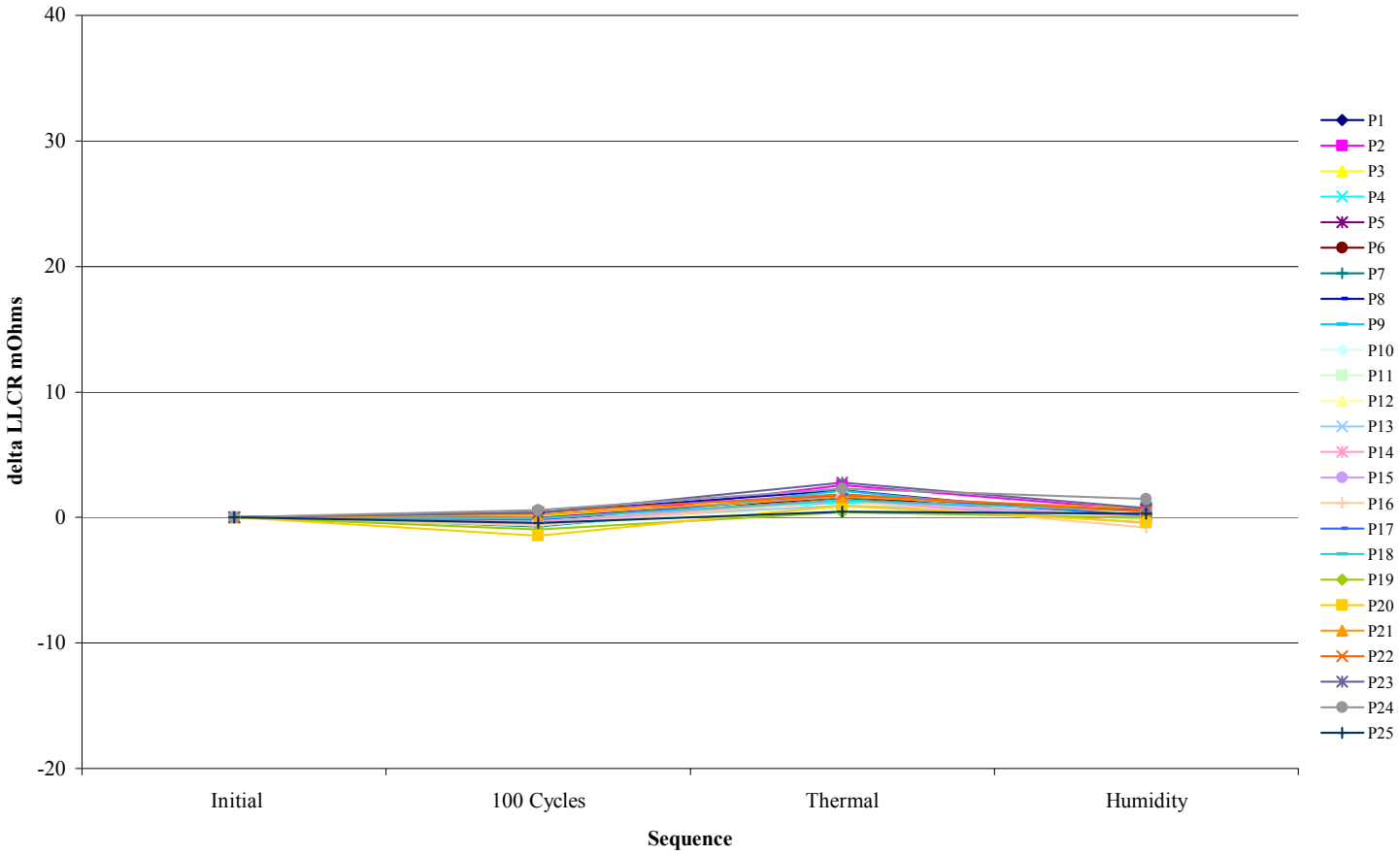
Board #4



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

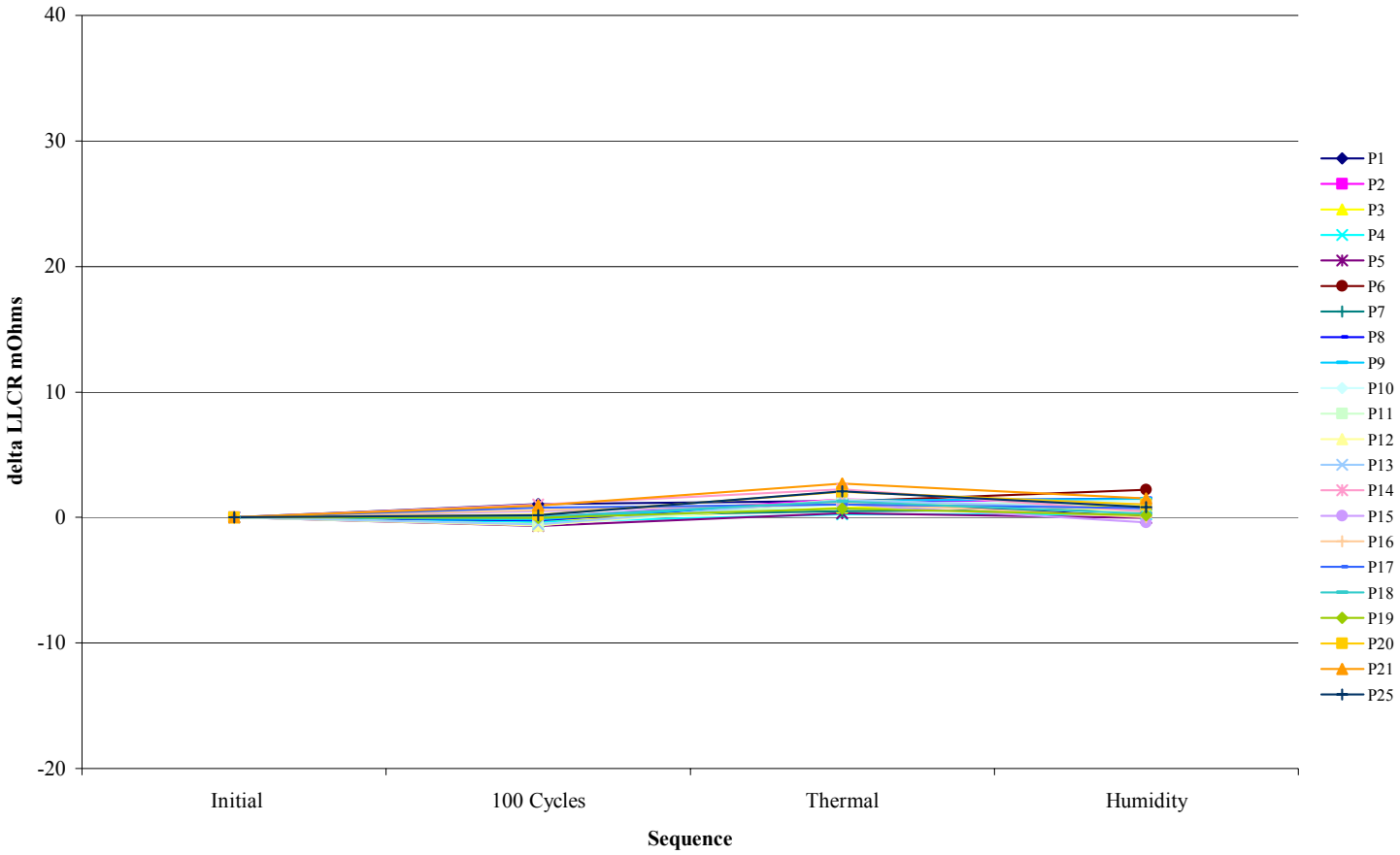
Board #5



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

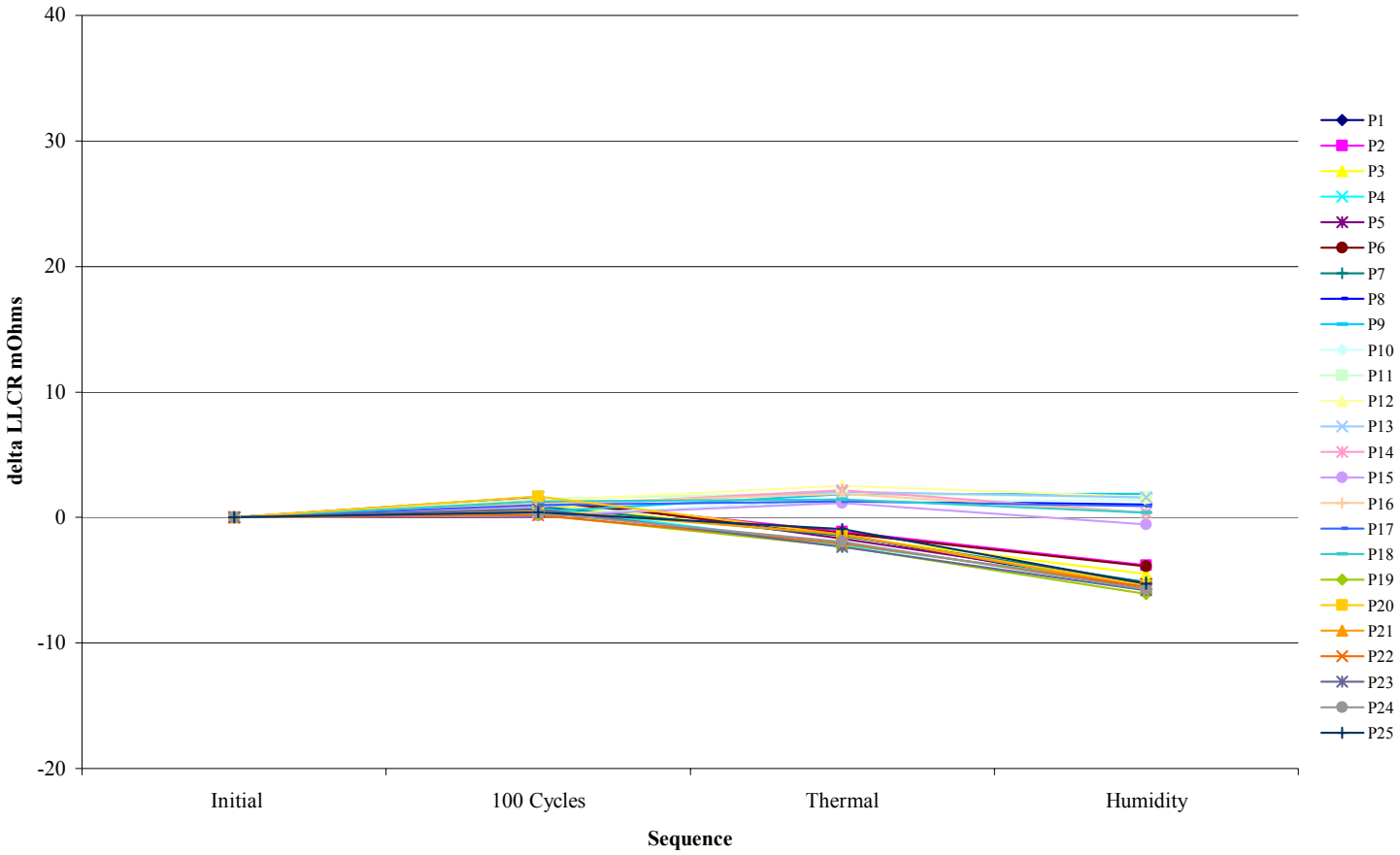
Board #6



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

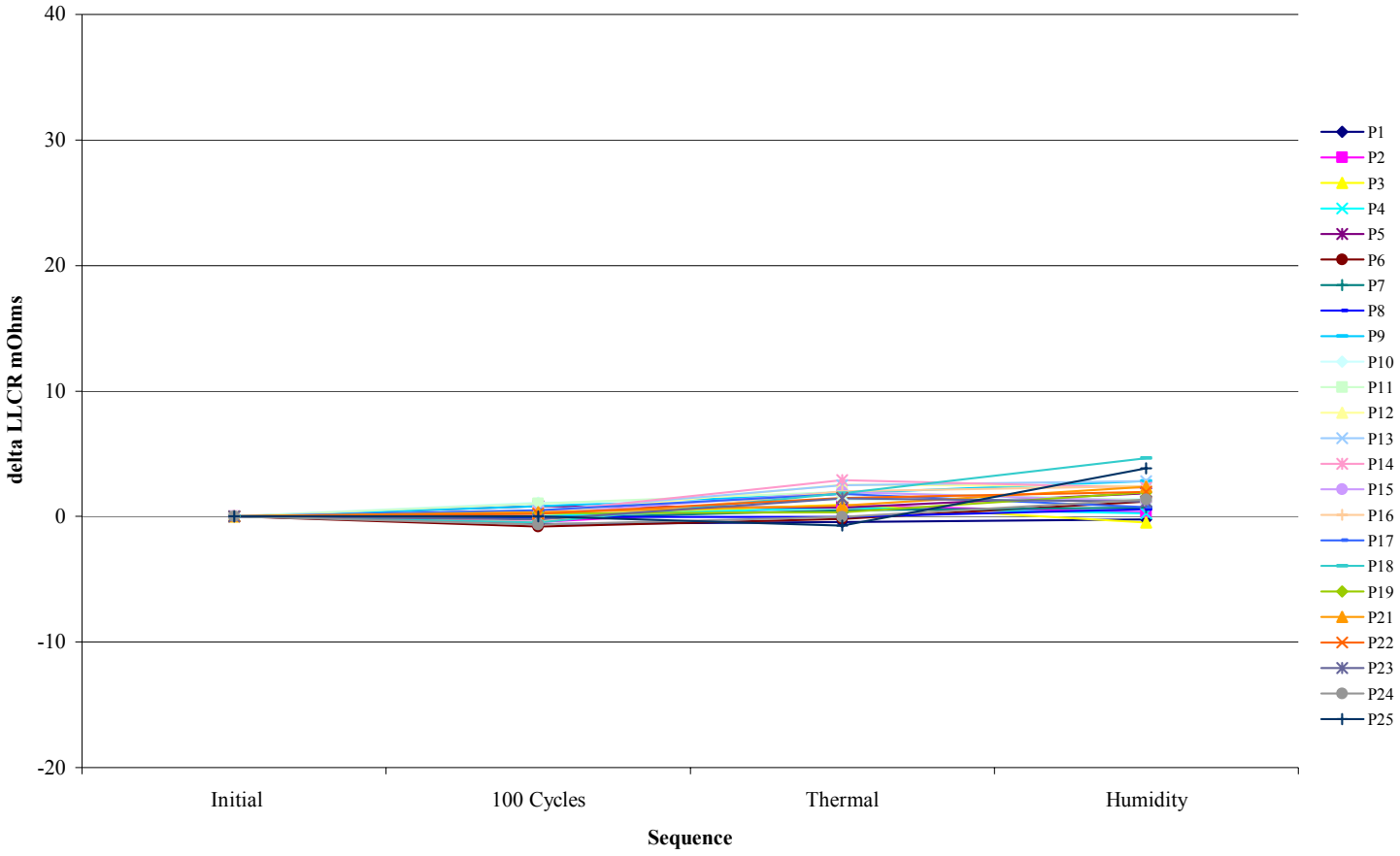
Board #7



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

Board #8



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

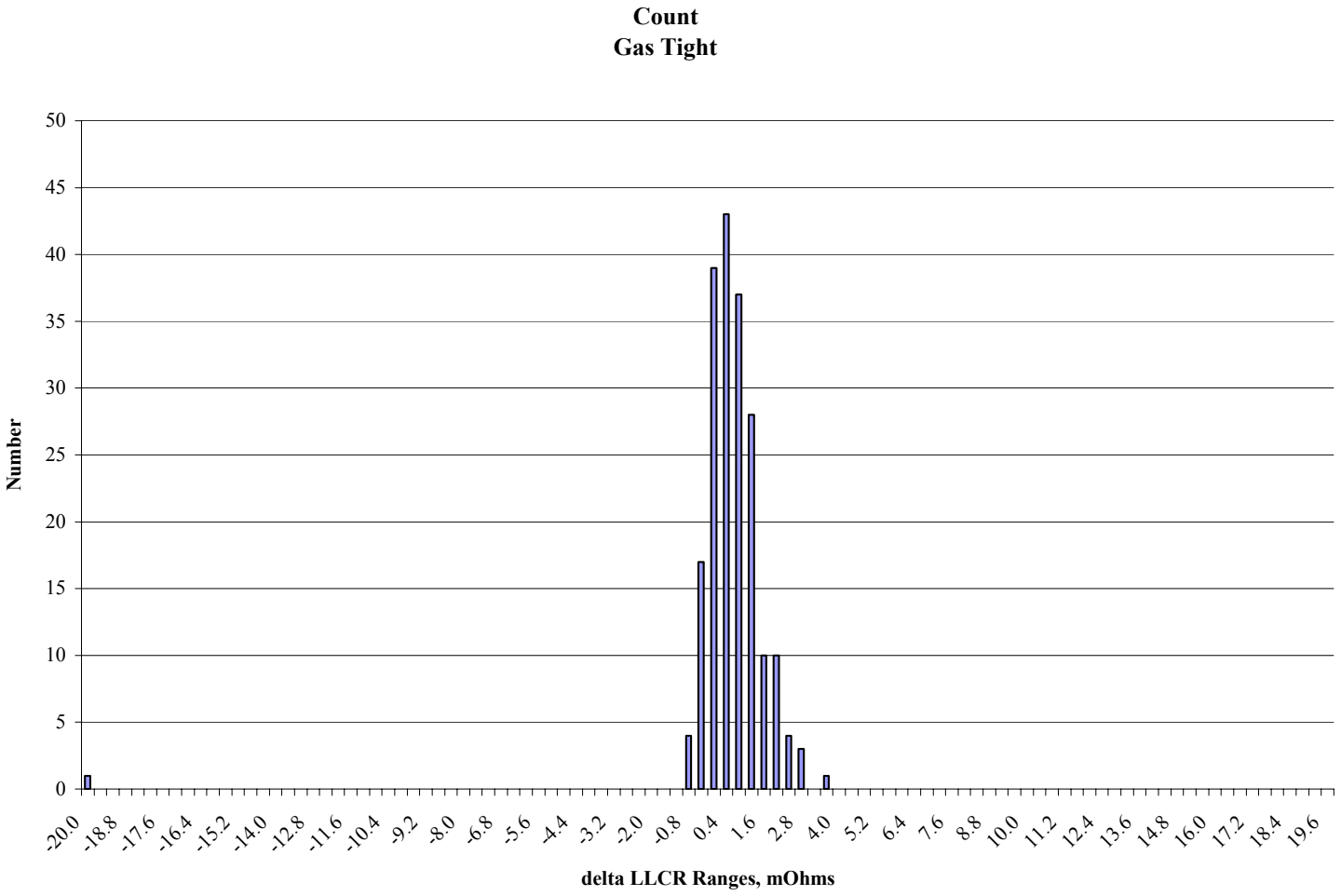
DATA SUMMARIES Continued

GAS TIGHT:

1) A total of 200 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 +2000 mOhms: ---------- Unstable
   f) >+2000 mOhms:---------- Open Failure

mOhm values	Actual Initial	Delta Gas Tight
Average	36.7	0.5
St. Dev.	2.8	0.8
Min	30.5	-1.1
Max	40.3	3.4
Count	198 *	198 *

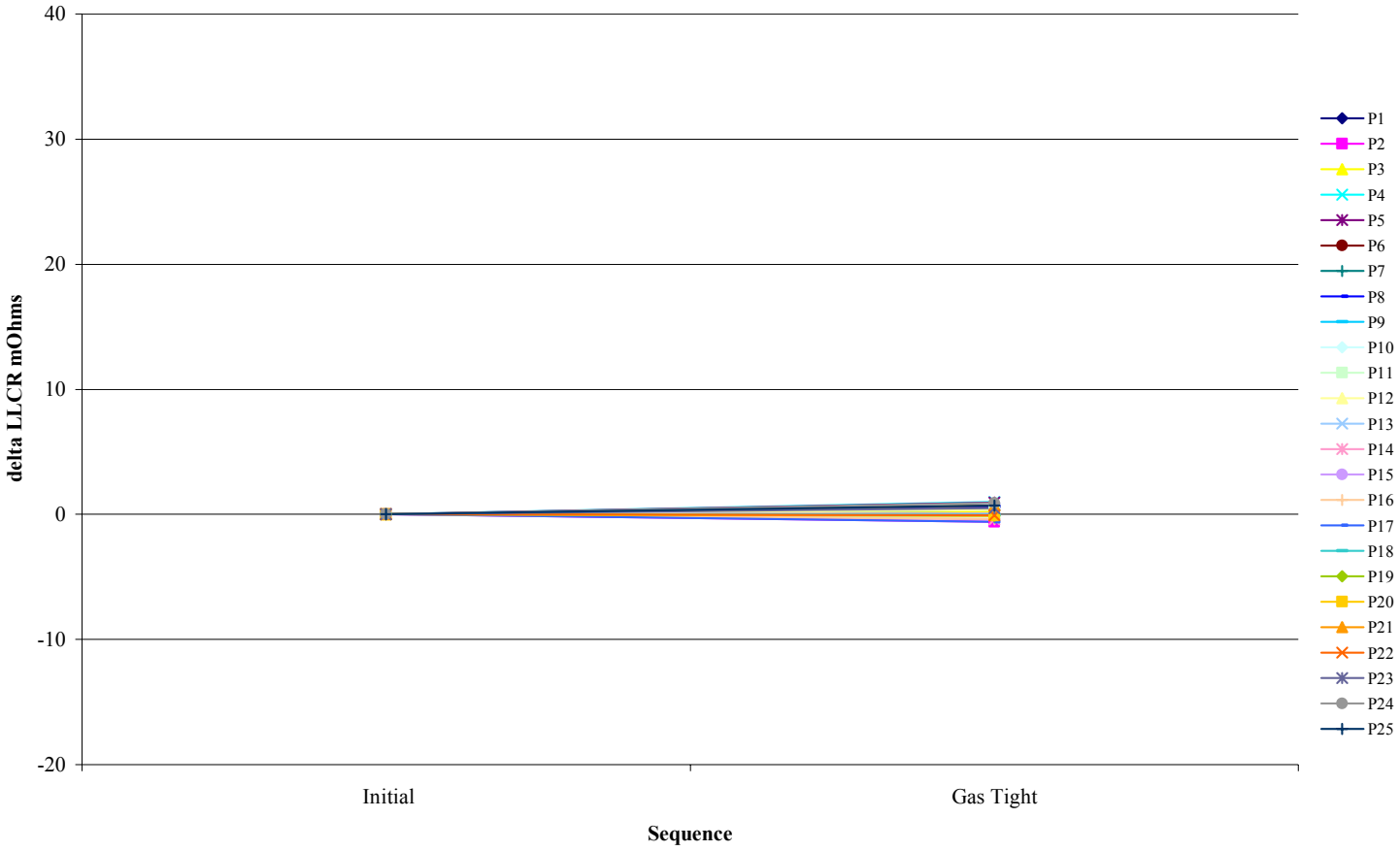
* One board was open and another board had an exceptionally high LLCR reading at start of test.



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

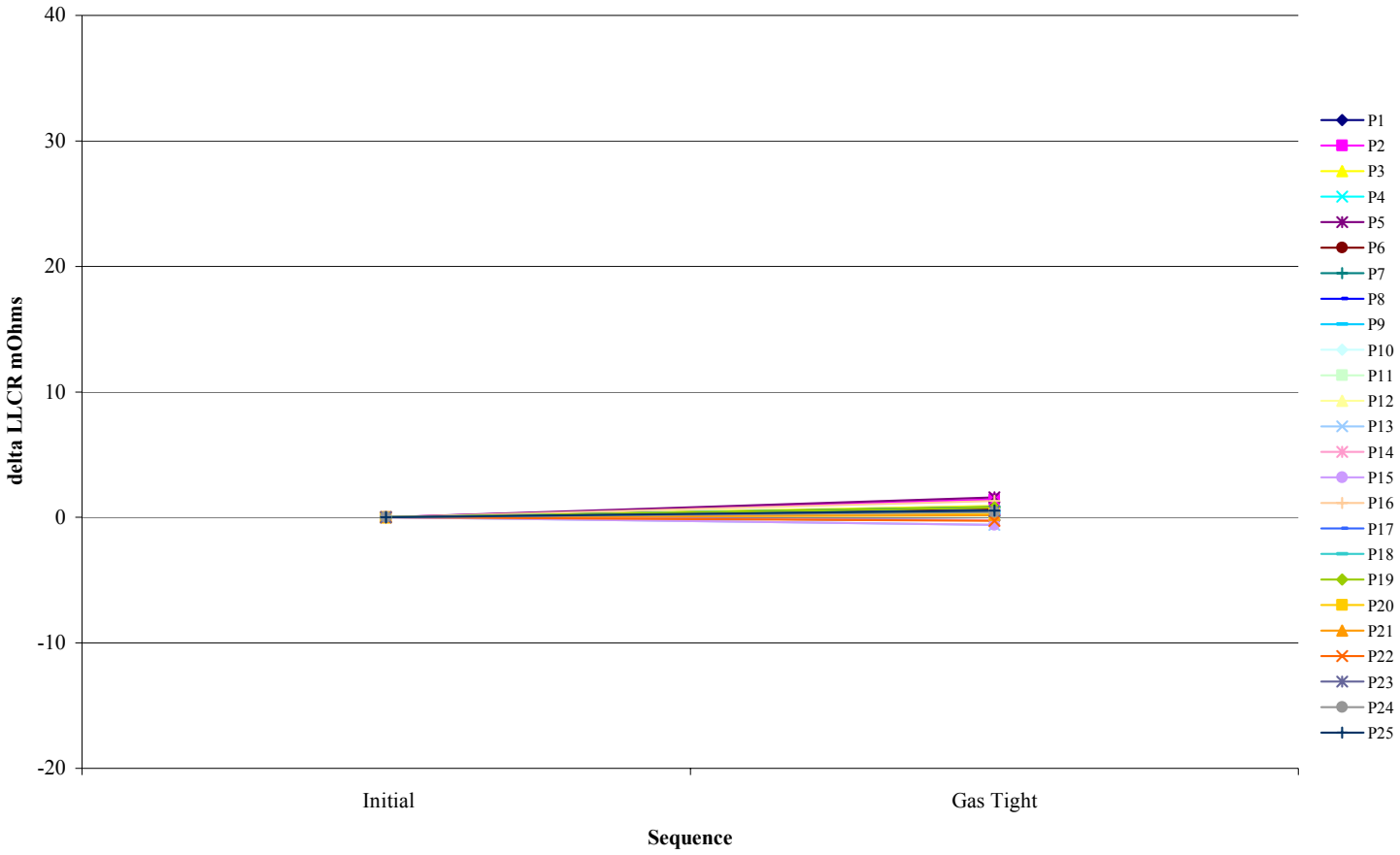
Board #1



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

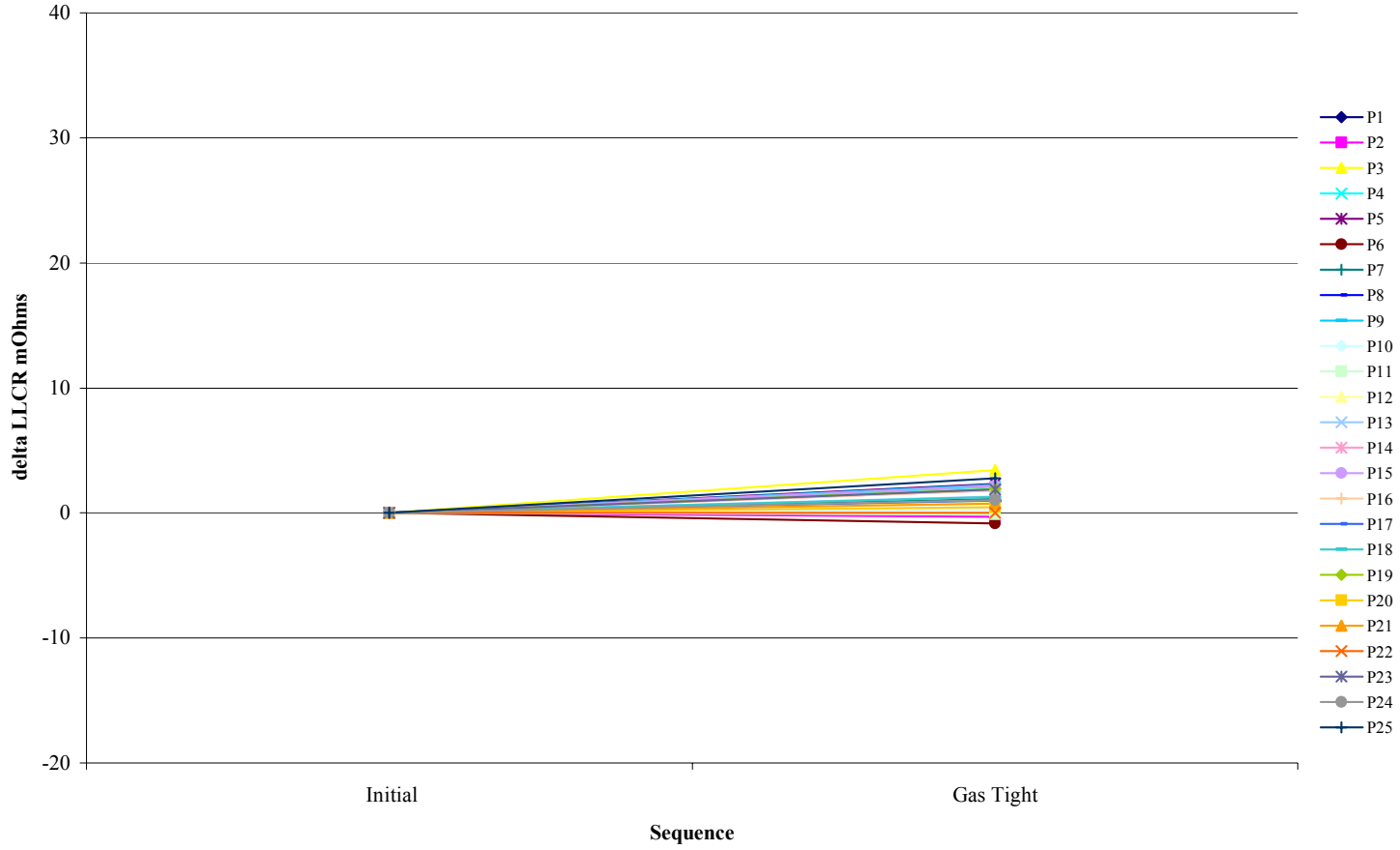
Board #2



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

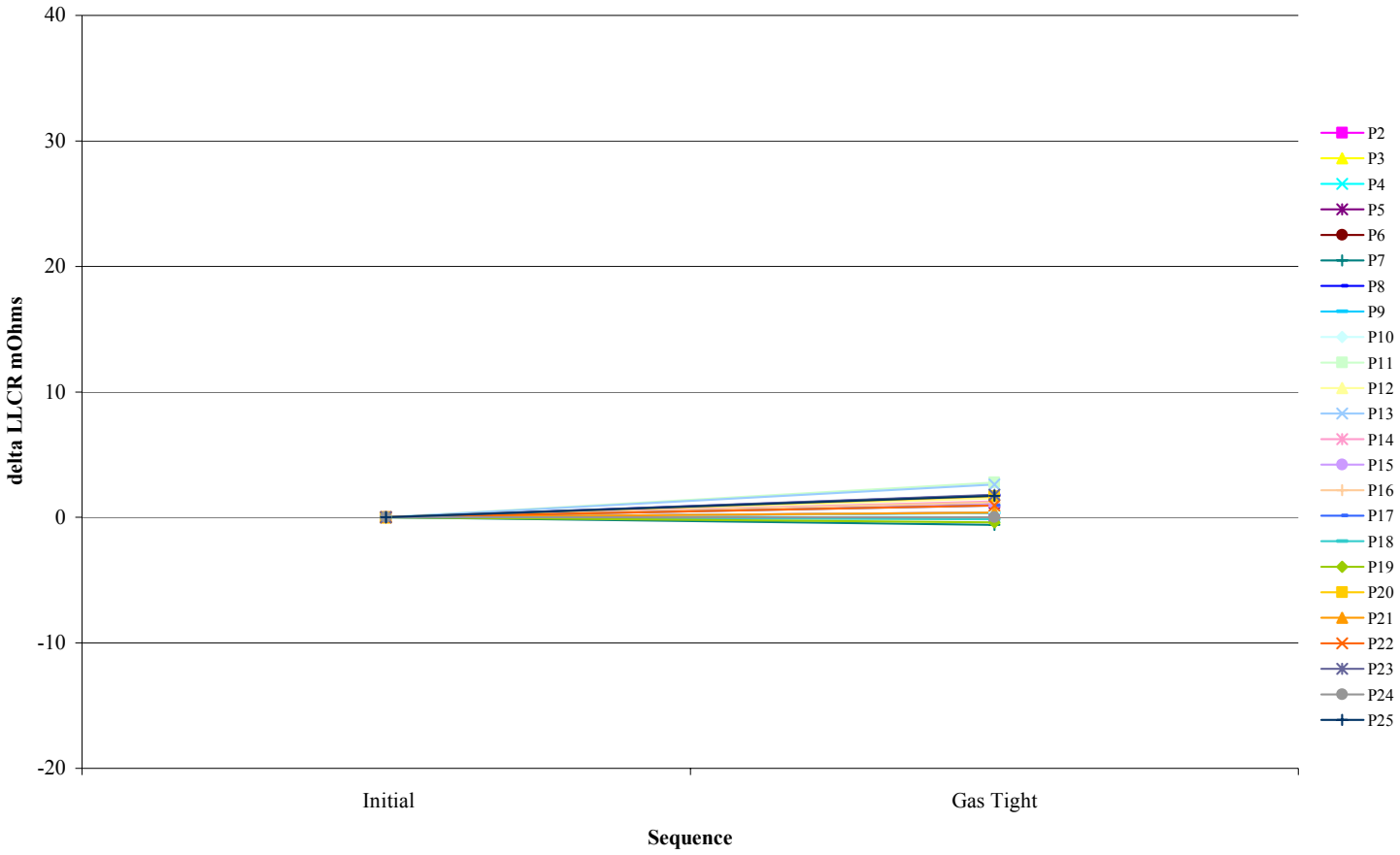
Board #3



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

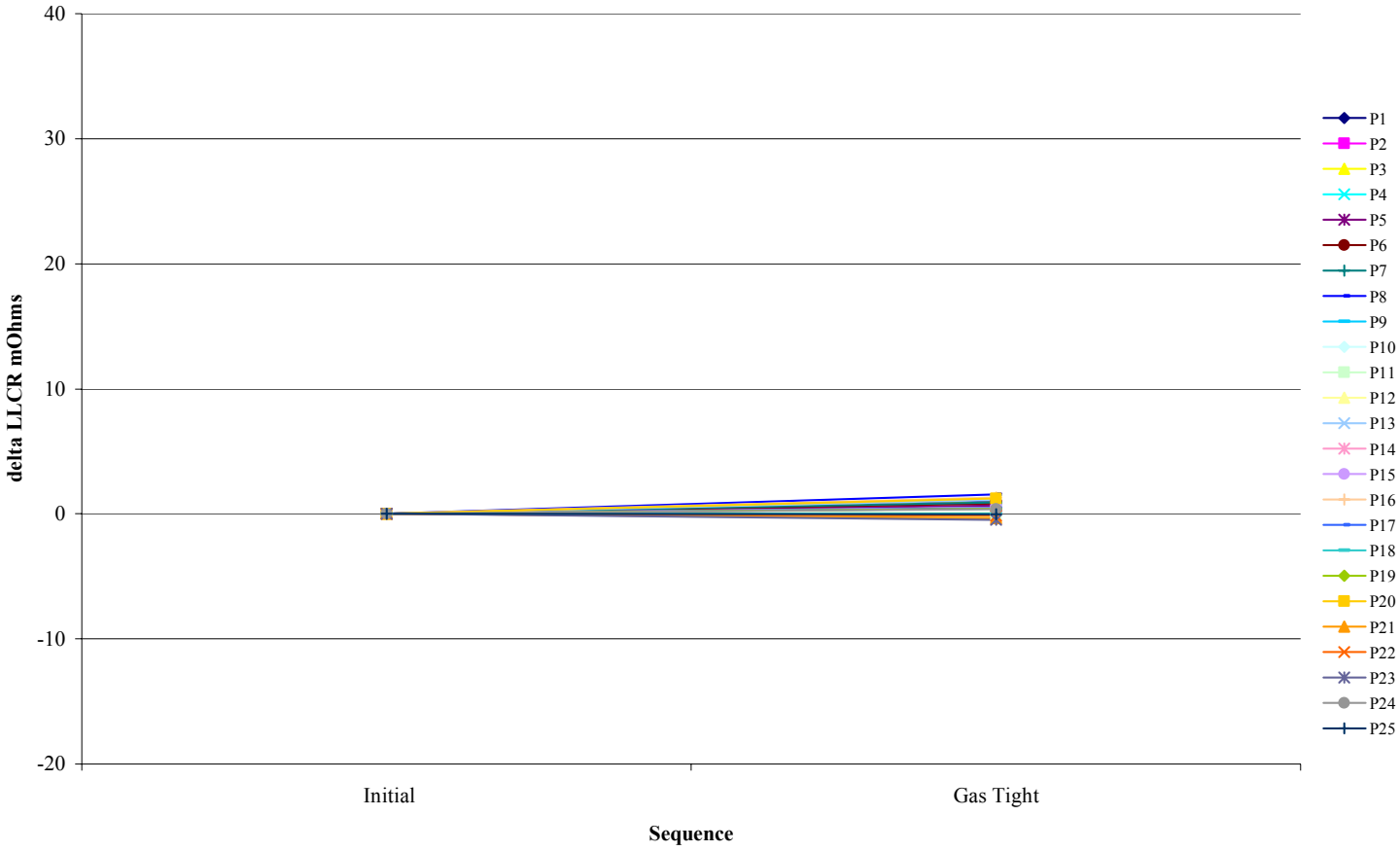
Board #4



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

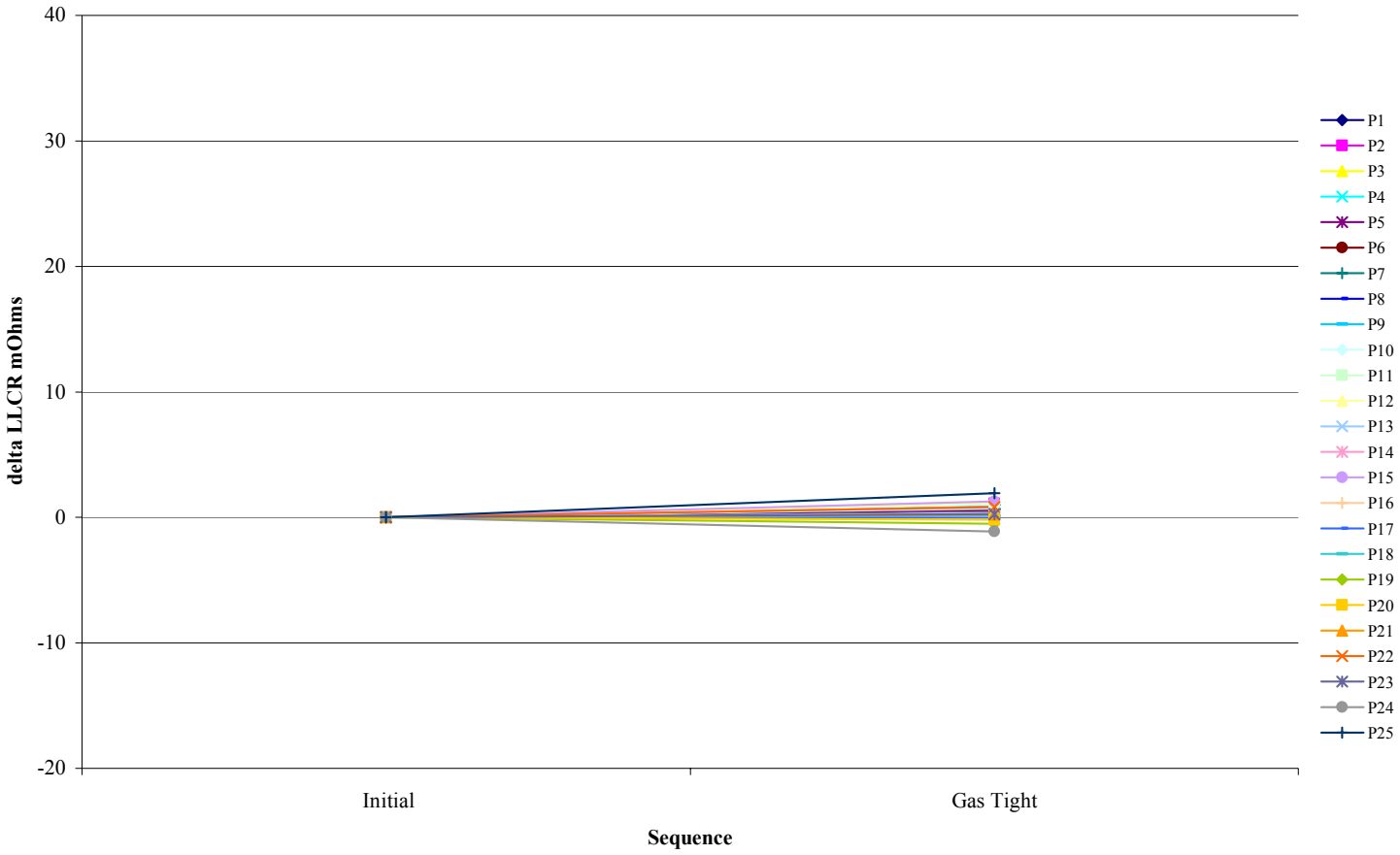
Board #5



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

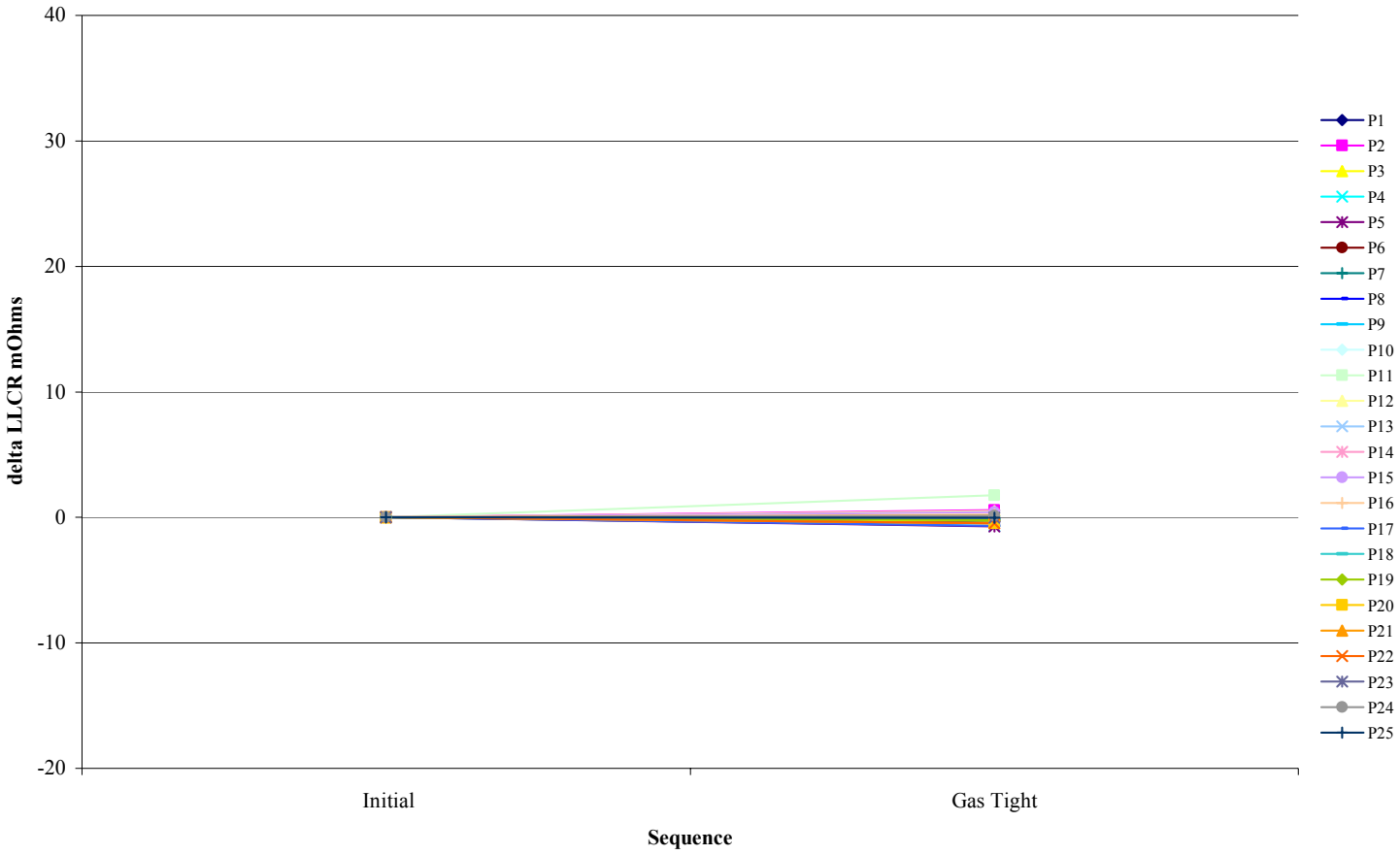
Board #6



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

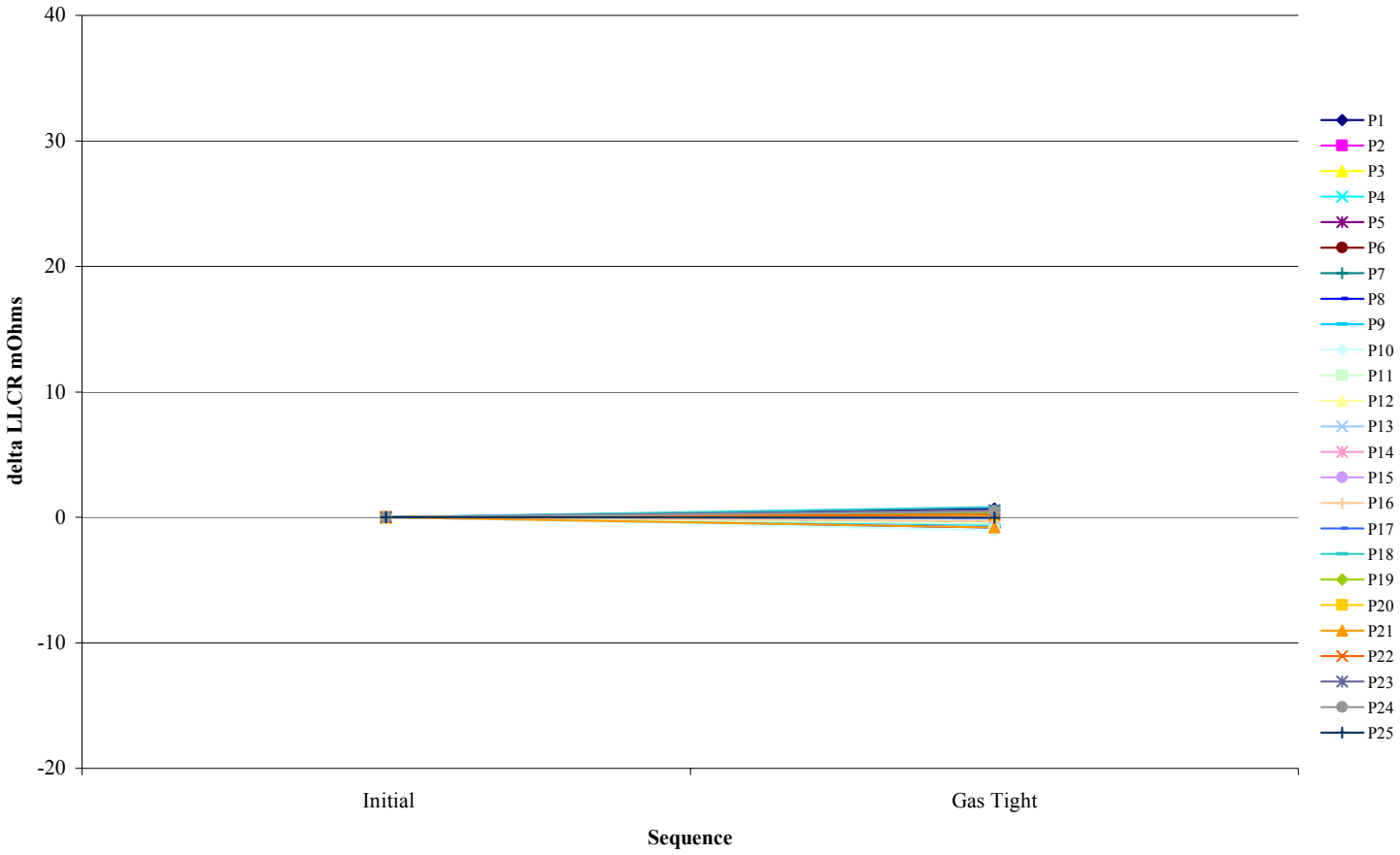
Board #7



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA SUMMARIES Continued

Board #8



Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA

CONTACT GAPS Initial:

Test Date:	12/2/2003
Operator:	GL
Temperature (C):	24
Humidity (RH):	21%
Equipment ID:	OGP-01

Used In:	QSS-RA

Measurements in inches

Sample#	B1	B2	B3	B4	B5
1	0.16809	0.16753	0.16770	0.16758	0.16783
2	0.16914	0.16861	0.16856	0.16875	0.16874
3	0.16961	0.16901	0.16944	0.16935	0.16949
4	0.16910	0.16917	0.16936	0.16959	0.16962
5	0.16960	0.16924	0.16949	0.16977	0.16993
6	0.16950	0.16956	0.17007	0.16968	0.16954
7	0.16979	0.16925	0.16961	0.16990	0.17023
8	0.16960	0.16945	0.16935	0.16960	0.17009
9	0.16998	0.16956	0.16948	0.16986	0.16969
10	0.16910	0.16876	0.16914	0.16947	0.16940
11	0.16978	0.16881	0.16965	0.16981	0.16986
12	0.16946	0.16910	0.16960	0.16950	0.16957
13	0.16941	0.16880	0.16954	0.16941	0.16932
14	0.16889	0.16895	0.16890	0.16863	0.16912
15	0.16957	0.16940	0.16967	0.16944	0.16965
16	0.17024	0.16948	0.16973	0.17004	0.16997
17	0.16980	0.16896	0.16960	0.16942	0.16976
18	0.17002	0.16996	0.16931	0.16942	0.16979
19	0.16968	0.16936	0.16942	0.16961	0.16968
20	0.16935	0.16896	0.16942	0.16923	0.16977
21	0.16971	0.16971	0.16950	0.16957	0.16995
22	0.16960	0.16966	0.16980	0.16982	0.16999
23	0.16929	0.16887	0.16967	0.16914	0.16934
24	0.16985	0.16991	0.16975	0.16983	0.17002
25	0.16978	0.16991	0.16975	0.16958	0.17007
26	0.16950	0.16955	0.16996	0.16936	0.16981
27	0.16891	0.16907	0.16937	0.16869	0.16907
28	0.16943	0.16966	0.17009	0.16947	0.16985
29	0.16976	0.16961	0.17000	0.16970	0.17035
30	0.17008	0.16986	0.16975	0.16984	0.16997
31	0.17044	0.17025	0.16975	0.17031	0.17003
32	0.17030	0.16881	0.16980	0.16962	0.17023
33	0.17004	0.16951	0.16975	0.16961	0.17013
34	0.16975	0.17004	0.16960	0.16999	0.17030
35	0.17028	0.16998	0.16980	0.17036	0.17053
36	0.16993	0.16949	0.16991	0.16976	0.17014
37	0.16999	0.17052	0.17063	0.17004	0.17030
38	0.17000	0.17000	0.17046	0.17000	0.17024
39	0.16999	0.17000	0.16988	0.17006	0.17013
40	0.16933	0.16936	0.16949	0.16948	0.16963
41	0.16945	0.17006	0.17003	0.16946	0.17005

42	0.16980		0.16955		0.16974		0.16949		0.17031
43	0.16920		0.16947		0.16971		0.16927		0.16954
44	0.16949		0.16943		0.16987		0.16956		0.16976
45	0.16970		0.16953		0.16980		0.16948		0.17007
46	0.16957		0.16920		0.17003		0.16978		0.16994
47	0.17034		0.16986		0.17078		0.17050		0.17047
48	0.17053		0.16792		0.17093		0.17065		0.17100
49	0.17031		0.16986		0.17039		0.17011		0.17040
50	0.17040		0.17028		0.17088		0.17079		0.17095
51	0.17014		0.17022		0.17025		0.17049		0.17051
52	0.16803		0.16816		0.16850		0.16854		0.16850

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

CONTACT GAPS Mating:

Test Date:	1/2/2003
Operator:	GL
Temperature (C):	23
Humidity (RH):	31%
Equipment ID:	OGP-01

Used In: QSS-RA

Mating

Measurements in inches

Sample#	B1		B2		B3		B4		B5	
1	0.16540		0.16581		0.16575		0.16561		0.16599	
2	0.16730		0.16720		0.16738		0.16730		0.16785	
3	0.16783		0.16805		0.16814		0.16799		0.16856	
4	0.16778		0.16780		0.16826		0.16813		0.16848	
5	0.16815		0.16811		0.16840		0.16832		0.16874	
6	0.16815		0.16834		0.16800		0.16830		0.16831	
7	0.16844		0.16817		0.16853		0.16863		0.16910	
8	0.16843		0.16829		0.16830		0.16819		0.16905	
9	0.16848		0.16828		0.16817		0.16825		0.16870	
10	0.16783		0.16761		0.16791		0.16801		0.16814	
11	0.16796		0.16762		0.16796		0.16792		0.16832	
12	0.16740		0.16750		0.16748		0.16740		0.16776	
13	0.16643		0.16635		0.16649		0.16657		0.16679	
14	0.16636		0.16635		0.16620		0.16589		0.16671	
15	0.16751		0.16753		0.16749		0.16715		0.16773	
16	0.16843		0.16791		0.16817		0.16797		0.16845	
17	0.16836		0.16777		0.16811		0.16786		0.16870	
18	0.16831		0.16850		0.16818		0.16792		0.16855	
19	0.16824		0.16813		0.16812		0.16806		0.16850	
20	0.16826		0.16806		0.16827		0.16787		0.16861	
21	0.16834		0.16846		0.16819		0.16810		0.16865	
22	0.16828		0.16850		0.16834		0.16824		0.16864	
23	0.16787		0.16788		0.16808		0.16762		0.16809	
24	0.16784		0.16806		0.16784		0.16777		0.16839	
25	0.16729		0.16764		0.16745		0.16714		0.16776	
26	0.16631		0.16656		0.16648		0.16629		0.16661	
27	0.16625		0.16654		0.16626		0.16592		0.16648	
28	0.16741		0.16771		0.16758		0.16720		0.16786	
29	0.16802		0.16804		0.16808		0.16788		0.16864	
30	0.16828		0.16843		0.16808		0.16818		0.16852	
31	0.16877		0.16885		0.16820		0.16854		0.16878	
32	0.16853		0.16795		0.16842		0.16811		0.16885	
33	0.16860		0.16837		0.16851		0.16818		0.16891	
34	0.16835		0.16880		0.16856		0.16847		0.16903	
35	0.16874		0.16874		0.16882		0.16857		0.16904	
36	0.16829		0.16821		0.16835		0.16812		0.16866	
37	0.16820		0.16852		0.16848		0.16828		0.16848	
38	0.16789		0.16777		0.16787		0.16760		0.16784	
39	0.16693		0.16689		0.16669		0.16684		0.16689	
40	0.16685		0.16686		0.16665		0.16677		0.16689	
41	0.16758		0.16759		0.16760		0.16750		0.16792	
42	0.16811		0.16811		0.16783		0.16797		0.16846	

43	0.16787		0.16816		0.16792		0.16808		0.16815
44	0.16825		0.16838		0.16828		0.16841		0.16868
45	0.16866		0.16836		0.16820		0.16838		0.16868
46	0.16858		0.16818		0.16849		0.16873		0.16872
47	0.16890		0.16845		0.16882		0.16898		0.16891
48	0.16896		0.16855		0.16810		0.16917		0.16860
49	0.16860		0.16836		0.16835		0.16870		0.16877
50	0.16863		0.16839		0.16863		0.16897		0.16882
51	0.16776		0.16780		0.16735		0.16823		0.16787
52	0.16620		0.16625		0.16582		0.16656		0.16667

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

CONTACT GAPS Thermal:

Test Date:	1/13/2003
Operator:	GL
Temperature (C):	24
Humidity (RH):	15%
Equipment ID:	OGP-01

Used In: QSS-RA

Thermals

Measurements in inches

Sample#	B1	B2	B3	B4	B5
1	0.16294	0.16305	0.16312	0.16302	0.16339
2	0.16471	0.16463	0.16465	0.16460	0.16519
3	0.16550	0.16546	0.16568	0.16566	0.16604
4	0.16559	0.16551	0.16602	0.16572	0.16618
5	0.16601	0.16584	0.16613	0.16603	0.16651
6	0.16599	0.16597	0.16640	0.16601	0.16638
7	0.16639	0.16588	0.16606	0.16636	0.16682
8	0.16623	0.16595	0.16594	0.16582	0.16691
9	0.16622	0.16586	0.16583	0.16581	0.16636
10	0.16567	0.16532	0.16557	0.16567	0.16575
11	0.16554	0.16516	0.16537	0.16525	0.16575
12	0.16485	0.16462	0.16470	0.16476	0.16499
13	0.16361	0.16324	0.16348	0.16349	0.16387
14	0.16355	0.16328	0.16328	0.16308	0.16383
15	0.16490	0.16473	0.16472	0.16439	0.16497
16	0.16593	0.16538	0.16557	0.16535	0.16586
17	0.16600	0.16551	0.16578	0.16524	0.16618
18	0.16608	0.16600	0.16575	0.16546	0.16619
19	0.16610	0.16580	0.16587	0.16552	0.16613
20	0.16641	0.16575	0.16600	0.16553	0.16636
21	0.16623	0.16596	0.16593	0.16571	0.16641
22	0.16603	0.16580	0.16588	0.16573	0.16623
23	0.16561	0.16532	0.16570	0.16523	0.16566
24	0.16535	0.16522	0.16519	0.16515	0.16563
25	0.16461	0.16448	0.16455	0.16443	0.16488
26	0.16347	0.16322	0.16343	0.16332	0.16357
27	0.16341	0.16321	0.16336	0.16326	0.16352
28	0.16472	0.16455	0.16471	0.16448	0.16492
29	0.16542	0.16521	0.16549	0.16538	0.16591
30	0.16590	0.16571	0.16559	0.16567	0.16612
31	0.16640	0.16607	0.16588	0.16603	0.16637
32	0.16618	0.16552	0.16608	0.16582	0.16645
33	0.16644	0.16589	0.16620	0.16573	0.16664
34	0.16611	0.16607	0.16625	0.16605	0.16661
35	0.16627	0.16591	0.16641	0.16608	0.16654
36	0.16585	0.16560	0.16584	0.16570	0.16610
37	0.16563	0.16541	0.16578	0.16556	0.16571
38	0.16509	0.16456	0.16498	0.16465	0.16484
39	0.16381	0.16357	0.16351	0.16369	0.16398
40	0.16392	0.16366	0.16364	0.16366	0.16383

41	0.16488		0.16460		0.16473		0.16478		0.16499	
42	0.16556		0.16532		0.16530		0.16553		0.16577	
43	0.16568		0.16557		0.16547		0.16573		0.16592	
44	0.16609		0.16596		0.16596		0.16607		0.16602	
45	0.16634		0.16595		0.16597		0.16600		0.16630	
46	0.16645		0.16602		0.16621		0.16647		0.16659	
47	0.16653		0.16615		0.16621		0.16654		0.16643	
48	0.16669		0.16623		0.16649		0.16656		0.16678	
49	0.16628		0.16600		0.16594		0.16622		0.16630	
50	0.16606		0.16578		0.16587		0.16615		0.16602	
51	0.16509		0.16503		0.16454		0.16523		0.16509	
52	0.16352		0.16329		0.16309		0.16355		0.16385	

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

CONTACT GAPS Humidity:

Test Date:	2/3/2003
Operator:	GL
Temperature (C):	23
Humidity (RH):	15%
Equipment ID:	OGP-01

Used In: QSS-RA

Humidity

Measurements in inches

Sample#	B1		B2		B3		B4		B5	
1	0.16306		0.16302		0.16288		0.16292		0.16338	
2	0.16464		0.16442		0.16457		0.16375		0.16499	
3	0.16541		0.16525		0.16551		0.16551		0.16579	
4	0.16557		0.16550		0.16563		0.16564		0.16608	
5	0.16589		0.16564		0.16596		0.16598		0.16622	
6	0.16582		0.16595		0.16612		0.16594		0.16611	
7	0.16628		0.16589		0.16620		0.16620		0.16668	
8	0.16600		0.16585		0.16580		0.16579		0.16646	
9	0.16614		0.16563		0.16567		0.16571		0.16623	
10	0.16570		0.16519		0.16548		0.16550		0.16570	
11	0.16574		0.16497		0.16544		0.16517		0.16569	
12	0.16463		0.16449		0.16445		0.16464		0.16493	
13	0.16364		0.16317		0.16342		0.16335		0.16361	
14	0.16349		0.16325		0.16343		0.16327		0.16367	
15	0.16483		0.16454		0.16467		0.16437		0.16486	
16	0.16582		0.16519		0.16538		0.16524		0.16570	
17	0.16580		0.16528		0.16584		0.16509		0.16597	
18	0.16595		0.16574		0.16558		0.16536		0.16605	
19	0.16590		0.16557		0.16582		0.16544		0.16608	
20	0.16629		0.16554		0.16584		0.16553		0.16625	
21	0.16605		0.16574		0.16580		0.16563		0.16632	
22	0.16559		0.16571		0.16591		0.16559		0.16614	
23	0.16556		0.16517		0.16559		0.16510		0.16559	
24	0.16528		0.16507		0.16511		0.16507		0.16557	
25	0.16462		0.16434		0.16445		0.16432		0.16478	
26	0.16348		0.16314		0.16329		0.16319		0.16354	
27	0.16335		0.16310		0.16324		0.16314		0.16352	
28	0.16459		0.16505		0.16455		0.16442		0.16487	
29	0.16531		0.16564		0.16548		0.16538		0.16587	
30	0.16591		0.16555		0.16550		0.16560		0.16595	
31	0.16632		0.16589		0.16581		0.16609		0.16614	
32	0.16616		0.16583		0.16590		0.16570		0.16632	
33	0.16640		0.16573		0.16608		0.16555		0.16657	
34	0.16604		0.16588		0.16609		0.16612		0.16654	
35	0.16611		0.16574		0.16624		0.16586		0.16642	
36	0.16576		0.16530		0.16571		0.16549		0.16593	
37	0.16549		0.16527		0.16567		0.16543		0.16559	
38	0.16501		0.16449		0.16487		0.16451		0.16474	
39	0.16381		0.16346		0.16331		0.16368		0.16375	
40	0.16394		0.16361		0.16368		0.16370		0.16374	
41	0.16470		0.16449		0.16466		0.16475		0.16483	
42	0.16551		0.16515		0.16512		0.16540		0.16560	

43	0.16565		0.16548		0.16534		0.16565		0.16569	
44	0.16605		0.16575		0.16578		0.16594		0.16572	
45	0.16626		0.16588		0.16576		0.16591		0.16613	
46	0.16639		0.16580		0.16607		0.16650		0.16623	
47	0.16632		0.16597		0.16618		0.16650		0.16625	
48	0.16643		0.16611		0.16506		0.16656		0.16661	
49	0.16619		0.16578		0.16576		0.16620		0.16604	
50	0.16595		0.16557		0.16575		0.16610		0.16561	
51	0.16490		0.16491		0.16450		0.16511		0.16462	
52	0.16334		0.16334		0.16297		0.16353		0.16365	

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

MATING/UNMATING Initial:

Test Date:	1/2/2003
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	35%

	Initial				After 100 Cycles			
	Mating		**Unmating**		**Mating**		**Unmating**	
Sample#	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
1	317.76	19.86	140.48	8.78	337.92	21.12	185.6	11.60
2	359.36	22.46	147.52	9.22	350.72	21.92	190.08	11.88
3	353.28	22.08	174.4	10.90	362.56	22.66	201.6	12.60
4	338.24	21.14	141.44	8.84	309.44	19.34	160.96	10.06
5	335.04	20.94	144.64	9.04	344.64	21.54	184.64	11.54
6	337.92	21.12	174.72	10.92	336.32	21.02	206.08	12.88
7	343.04	21.44	169.6	10.60	369.28	23.08	190.4	11.90
8	326.4	20.40	161.6	10.10	361.6	22.60	226.56	14.16
9	373.12	23.32	153.28	9.58	369.6	23.10	171.52	10.72
10	349.12	21.82	151.36	9.46	347.84	21.74	154.56	9.66

Test Date:	1/14/2003
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	25%

Test Date:	2/3/2003
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	41%

	After Thermals				After Humdity			
	Mating		**Unmating**		**Mating**		**Unmating**	
Sample#	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)	Force (Oz)	Force (Lbs)
1	175.68	10.98	126.4	7.90	174.72	10.92	89.92	5.62
2	167.68	10.48	115.84	7.24	156.8	9.80	83.2	5.20
3	218.56	13.66	167.68	10.48	165.76	10.36	96.96	6.06
4	192.96	12.06	125.44	7.84	160.32	10.02	90.56	5.66
5	198.08	12.38	122.24	7.64	177.92	11.12	86.4	5.40
6	196.16	12.26	152.32	9.52	145.6	9.10	101.44	6.34
7	202.24	12.64	148.8	9.30	215.36	13.46	120.96	7.56
8	173.44	10.84	93.44	5.84	205.76	12.86	116.48	7.28
9	191.04	11.94	174.4	10.90	201.28	12.58	104.64	6.54
10	155.52	9.72	136.64	8.54	171.52	10.72	93.44	5.84

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

Test Date:	1/6/2003
Operator:	Troy Cook
Temperature:	25
Humidity:	30%

INITIAL

Top **Deflections in inches Forces in Grams**

Sample #	N.F.@ 0.001	N.F.@ 0.002	N.F.@ 0.004	N.F.@ 0.006	N.F.@ 0.008	*SET*
1	12.84	25.97	49.85	72.84	93.13	0.00165
2	13.46	27.91	52.54	75.52	94.24	0.00165
3	12.48	28.24	54.18	78.48	98.51	0.00132
4	11.49	25.28	51.88	75.19	94.90	0.00134
5	14.33	29.01	55.16	80.24	99.94	0.00095
6	15.43	29.22	54.18	77.16	98.18	0.00100
7	13.13	28.24	54.84	78.15	97.85	0.00119
8	11.82	24.96	52.87	76.18	95.88	0.00132

Test Date:	1/16/2003
Operator:	Troy Cook
Temperature:	23
Humidity:	23%

THERMAL

Top **Deflections in inches, Forces in Grams**

Sample #	N.F.@ 0.001	N.F.@ 0.002	N.F.@ 0.004	N.F.@ 0.006	N.F.@ 0.008
1	14.69	29.73	56.60	85.61	108.20
2	11.46	26.15	55.16	83.82	107.80
3	14.36	27.55	57.04	83.82	107.50
4	9.85	21.34	48.60	74.21	100.80
5	14.69	28.66	54.09	80.60	106.00

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

NORMAL FORCE (FOR CONTACTS TESTED IN THE HOUSING):

Test Date:	1/6/2003
Operator:	Troy Cook
Temperature:	25
Humidity:	30%

INITIAL
Bottom **Deflections in inches Forces in Grams**

Sample #	N.F.@ 0.001	N.F.@ 0.002	N.F.@ 0.004	N.F.@ 0.006	N.F.@ 0.008	*SET*
1	12.84	25.37	50.45	75.22	97.01	0.00119
2	12.00	26.27	51.22	80.12	100.80	0.00132
3	14.12	27.58	53.52	79.46	98.84	0.00137
4	13.79	25.94	53.52	77.82	98.84	0.00113
5	9.85	23.31	52.54	76.51	97.85	0.00140
6	12.48	25.61	52.87	77.82	98.84	0.00118
7	12.84	25.97	51.94	74.33	94.93	0.00143
8	10.84	22.33	46.96	71.58	94.90	0.00130

Test Date:	1/16/2003
Operator:	Troy Cook
Temperature:	23
Humidity:	26%

THERMAL
Bottom **Deflections in inches, Forces in Grams**

Sample #	N.F.@ 0.001	N.F.@ 0.002	N.F.@ 0.004	N.F.@ 0.006	N.F.@ 0.008
1	12.81	27.25	54.51	81.76	103.80
2	12.48	26.60	51.55	81.10	104.10
3	15.04	28.66	58.39	85.61	106.70
4	13.61	29.37	56.24	84.90	106.40
5	13.25	27.22	54.45	84.18	105.70

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Initial:

Test Date:	1/2/2003	
Operator:	Troy Cook	
Temperature (C):	23	
Humidity (RH):	33%	
Pressure (In. Hg):	29.23	
Contact Part #:	N/A	
Used In:	QSS/QTS	
Test Conditions	**YES**	**NO**
Between Adjacent Contacts	**X**	
Mated	**X**	
PC Mounted	**X**	
Rate Of Applied Voltage	*500 V Per Sec. Until Breakdown Occurs*	
Test Voltage		

VAC	Initial					
	Bottom Row			Top Row		
Average	1375	1031	344	1350	1013	338
Min	1350	1013	338	1350	1013	338
Max	1400	1050	350	1350	1013	338

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Thermal:

Test Date:	1/13/2003	
Operator:	Troy Cook	
Temperature (C):	24	
Humidity (RH):	23%	
Pressure (In. Hg):	29.50	
Contact Part #:	N/A	
Used In:	QSS/QTS	
Test Conditions	**YES**	**NO**
Between Adjacent Contacts	**X**	
Mated	**X**	
PC Mounted	**X**	
Rate Of Applied Voltage	*500 V Per Sec. Until Breakdown Occurs*	
Test Voltage		

VAC

	Thermal					
	Bottom Row			Top Row		
Average	1250	938	313	1200	900	300
Min	1200	900	300	1100	825	275
Max	1300	975	325	1300	975	325

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Humidity:

Test Date:	1/31/2003
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	28%
Pressure (In. Hg):	29.32
Contact Part #:	N/A
Used In:	QSS/QTS

Test Conditions	**YES**	**NO**
Between Adjacent Contacts	**X**	
Mated	**X**	
PC Mounted	**X**	

Rate Of Applied Voltage *500 V Per Sec. Until Breakdown Occurs*

Test Voltage

VAC	**Humidity**					
	Bottom Row			**Top Row**		
Average	1300	975	325	1300	975	325
Min	1300	975	325	1300	975	325
Max	1300	975	325	1300	975	325

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

INSULATION RESISTANCE (IR) Initial:

Test Date:	1/2/2003
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	33%
Pressure (In. Hg):	29.23
Contact Part #:	N/A
Used In:	QSS/QTS

Test Conditions	**YES**	**NO**
Between Adjacent Contacts	**X**	
Mated	**X**	
PC Mounted	**X**	

Electrification Time *Two (2) minutes*

Values in Mohms

	Initial	
	Bottom Row	**Top Row**
Board/Sample #	**Insulation Resistance**	**Insulation Resistance**
1	25000	15000
2	25000	25000

DATA Continued

INSULATION RESISTANCE (IR) Thermal:

Test Date:	1/13/2003
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	24%
Pressure (In. Hg):	29.50
Contact Part #:	N/A
Used In:	QSS/QTS

Test Conditions	**YES**	**NO**
Between Adjacent Contacts	**X**	
Mated	**X**	
PC Mounted	**X**	

Electrification Time *Two (2) minutes*

Values in Mohms

	Thermal	
	Bottom Row	**Top Row**
Board/Sample #	**Insulation Resistance**	**Insulation Resistance**
1	100000	100000
2	100000	100000

DATA Continued

INSULATION RESISTANCE (IR) Humidity:

Test Date:	1/31/2003
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	28%
Pressure (In. Hg):	2932.00
Contact Part #:	N/A
Used In:	QSS/QTS

Test Conditions	**YES**	**NO**
Between Adjacent Contacts	**X**	
Mated	**X**	
PC Mounted	**X**	

Electrification Time *Two (2) minutes*

Values in Mohms

	Humidity	
	Bottom Row	**Top Row**
Board/Sample #	**Insulation Resistance**	**Insulation Resistance**
1	100000	100000
2	100000	100000

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

LLCR:

Date	Jan. 02 2003	Jan. 02 2003	Jan. 13 2003	Jan. 31 2003
Room Temp C	23	21	24	22
RH	31%	37%	17%	26%
Name	Troy Cook	Troy Cook	Troy Cook	Troy Cook

mOhm values		Actual	Delta	Delta	Delta
Board	Position	Initial	100 Cycles	Thermal	Humidity
1	P1	39.1	-0.4	0.7	0.0
1	P2	38.7	-0.6	0.0	0.6
1	P3	39.4	-1.2	-0.6	-0.1
1	P4	39.9	-1.4	0.2	-0.2
1	P5	39.5	-1.2	0.1	0.1
1	P6	39.6	-0.8	1.0	-0.1
1	P7	38.9	-0.5	1.2	0.3
1	P8	39.6	-1.0	1.2	0.3
1	P9	39.3	-2.8	0.3	0.3
1	P10	39.2	-1.5	-0.1	0.5
1	P11	39.4	-0.9	0.1	-0.1
1	P12	39.3	-0.6	1.2	0.7
1	P13	38.6	-0.2	0.5	0.7
1	P14	39.8	-0.9	0.5	-0.5
1	P15	38.7	-0.1	1.7	0.1
1	P16	38.8	0.4	1.1	-0.1
1	P17	34.0	4.8	5.5	5.3
1	P18	39.1	0.0	0.8	1.1
1	P19	39.1	-0.4	1.4	3.2
1	P20	39.0	-0.4	1.3	1.3
1	P21	38.6	0.0	2.7	1.0
1	P22	39.3	-0.2	1.5	0.2
1	P23	38.3	0.0	2.4	2.1
1	P24	38.6	-0.4	0.4	0.5
1	P25	38.4	-0.2	1.9	2.5
2	P2	32.3	0.6	1.6	2.5
2	P3	32.2	-0.6	1.3	0.4
2	P4	33.1	-0.2	-0.2	0.7
2	P5	32.4	0.7	1.2	0.5
2	P6	31.7	0.1	1.4	0.4
2	P7	31.5	-0.3	1.2	0.7
2	P8	39.8	-1.6	-0.3	0.5
2	P9	39.5	-1.5	-0.1	0.4
2	P10	39.6	-1.9	-1.2	1.1
2	P11	39.8	-2.0	-1.4	1.2
2	P12	39.9	-1.5	-1.3	0.1
2	P13	39.2	-0.2	0.2	0.2

2	P14	38.3	1.1	1.8	1.3
2	P15	38.2	1.5	1.5	0.7
2	P16	38.2	1.2	1.4	0.5
2	P17	38.6	0.8	0.8	2.6
2	P18	38.5	1.1	1.6	1.4
2	P19	31.2	0.2	2.5	2.9
2	P20	32.0	2.9	23.3	2.0
2	P21	33.4	-1.7	0.0	1.8
2	P22	32.4	-0.4	2.2	0.8
2	P23	32.3	0.4	1.5	1.3
2	P24	32.8	-1.1	0.5	1.3
2	P25	32.7	-1.3	0.1	
3	P1	37.6	0.2	0.9	0.8
3	P2	37.7	0.6	2.2	0.8
3	P3	37.9	0.5	2.9	0.4
3	P4	38.5	1.0	5.5	1.2
3	P5	38.0	0.4	2.9	2.5
3	P6	38.1	0.0	3.1	2.5
3	P7	38.6	-0.8	1.1	2.3
3	P8	39.9	-0.6	0.7	0.9
3	P9	38.6	-0.6	1.3	1.5
3	P10	38.5	-0.1	2.7	2.5
3	P11	38.1	0.1	2.1	2.4
3	P12	38.4	-0.2	1.7	2.6
3	P13	37.9	0.1	1.7	1.0
3	P14	39.2	-0.3	0.9	1.6
3	P15	38.4	0.2	1.5	7.5
3	P16	38.3	0.4	1.8	8.2
3	P17	38.4	0.0	1.4	2.2
3	P18	38.4	0.2	2.6	2.9
3	P19	38.2	1.0	1.7	3.7
3	P20	38.7	-0.3	0.6	7.9
3	P21	38.5	-0.4	0.2	7.8
3	P22	38.6	0.4	1.3	6.5
3	P23	38.3	-0.4	0.0	6.1
3	P24	38.0	-0.5	1.2	2.2
3	P25	38.8	-1.4	-0.6	3.9
4	P1	32.4	-0.1	0.2	0.5
4	P2	32.2	-0.2	0.8	0.5
4	P3	32.1	0.3	1.5	0.0
4	P4	32.8	-0.5	0.1	0.5
4	P5	32.3	-0.1	0.1	1.4
4	P6	32.3	-0.4	0.3	0.7
4	P7	32.0	-0.3	1.2	0.5
4	P8	40.0	-1.8	-0.3	-0.4
4	P9	38.7	1.1	0.3	-0.1
4	P10	38.0	1.3	1.0	1.0
4	P11	39.6	-0.1	0.1	-0.1
4	P12	39.2	-0.1	0.9	0.8
4	P13	37.6	0.4	0.7	0.9

4	P14	38.1	0.5	2.3	9.9
4	P15	38.6	0.2	1.8	4.9
4	P16	38.2	-0.6	1.5	8.3
4	P17	38.6	-0.3	1.9	3.2
4	P18	39.1	-0.1	1.7	7.1
4	P19	31.8	-0.2	1.0	1.6
4	P20	31.9	0.2	1.0	1.0
4	P21	32.1	-0.3	1.0	1.8
4	P22	32.2	0.2	0.9	1.3
4	P23	31.6	0.3	0.8	1.5
4	P24	32.3	-0.3	0.8	1.7
4	P25	32.2	0.5	1.6	2.1
5	P1	38.4	-0.4	1.4	0.0
5	P2	38.3	-0.4	2.6	0.6
5	P3	38.3	0.1	1.6	0.5
5	P4	38.4	-0.1	1.2	0.7
5	P5	38.9	0.0	1.6	0.6
5	P6	38.9	-0.2	1.7	0.0
5	P7	38.7	-0.8	1.5	0.1
5	P8	38.9	0.4	2.2	-0.1
5	P9	38.7	-0.5	2.1	-0.2
5	P10	38.9	-0.9	1.4	-0.2
5	P11	39.0	-0.5	1.9	-0.1
5	P12	38.7	-0.3	0.8	0.4
5	P13	38.3	-0.3	1.0	0.2
5	P14	38.8	-0.3	1.4	0.1
5	P15	38.9	-0.7	1.4	-0.4
5	P16	38.7	-0.7	1.3	-0.8
5	P17	38.2	-0.1	1.8	0.2
5	P18	38.4	-0.1	1.3	0.5
5	P19	38.8	-1.0	0.4	0.0
5	P20	39.5	-1.5	0.9	-0.4
5	P21	38.0	0.2	1.6	0.7
5	P22	37.9	0.4	1.8	0.5
5	P23	37.6	0.4	2.8	0.7
5	P24	37.5	0.6	2.3	1.5
5	P25	38.5	-0.4	0.5	0.3
6	P1	32.1	1.1	1.3	0.1
6	P2	33.0	0.0	1.4	1.0
6	P3	32.8	-0.4	0.8	0.9
6	P4	32.9	-0.3	0.2	0.3
6	P5	32.9	-0.7	0.3	0.0
6	P6	32.0	-0.2	1.3	2.2
6	P7	32.4	0.1	0.5	0.7
6	P8	38.5	-0.2	1.3	1.5
6	P9	38.3	-0.1	1.3	1.5
6	P10	38.5	-0.6	1.1	1.3
6	P11	38.6	-0.6	1.2	1.0
6	P12	38.5	-0.7	1.4	0.5
6	P13	39.0	-0.6	1.4	0.7

6	P14	37.6	1.0	2.3	0.5
6	P15	38.2	0.5	1.1	-0.4
6	P16	38.1	0.6	1.2	0.0
6	P17	37.9	0.8	1.0	0.7
6	P18	38.5	0.0	1.3	0.3
6	P19	32.4	0.0	0.7	0.2
6	P20	31.6	0.2	2.1	1.0
6	P21	31.3	0.9	2.7	1.5
6	P22	31.7	1.1	1.8	1.2
6	P23	31.4	1.5	1.4	1.1
6	P24	32.3	0.2	1.2	0.2
6	P25	31.8	0.2	2.1	0.8
7	P1	37.8	1.4	-1.4	-5.7
7	P2	37.8	1.4	-1.1	-3.8
7	P3	38.2	1.1	-1.5	-4.5
7	P4	38.5	0.8	-2.2	-5.3
7	P5	38.2	1.6	-1.7	-5.3
7	P6	38.1	1.3	-1.3	-3.9
7	P7	38.2	0.9	-1.4	-5.2
7	P8	39.0	0.1	1.4	1.0
7	P9	37.9	0.5	1.8	1.9
7	P10	38.4	0.2	1.3	1.4
7	P11	38.1	1.5	2.0	1.5
7	P12	37.4	1.3	2.5	1.6
7	P13	38.1	0.9	2.1	1.6
7	P14	37.7	0.9	2.2	0.4
7	P15	38.3	0.1	1.2	-0.5
7	P16	37.7	1.1	1.9	0.4
7	P17	37.7	1.0	1.3	0.9
7	P18	38.4	1.3	1.5	0.4
7	P19	38.6	0.2	-2.3	-6.1
7	P20	38.0	1.7	-1.4	-5.4
7	P21	38.4	0.6	-1.3	-5.6
7	P22	38.3	0.2	-2.0	-5.5
7	P23	38.2	0.7	-2.3	-5.8
7	P24	38.2	0.4	-1.9	-5.7
7	P25	37.9	0.4	-0.9	-5.3
8	P1	33.3	-0.6	-0.4	-0.2
8	P2	33.1	-0.4	0.9	0.4
8	P3	32.5	0.0	0.9	-0.5
8	P4	32.5	0.0	0.7	0.3
8	P5	31.9	0.8	0.7	1.8
8	P6	32.6	-0.8	-0.2	1.2
8	P7	32.4	-0.2	0.5	0.7
8	P8	39.0	0.0	0.0	0.6
8	P9	37.5	0.8	1.8	2.8
8	P10	37.4	1.1	1.3	1.4
8	P11	37.6	1.0	2.0	1.3
8	P12	37.6	0.2	2.6	2.4
8	P13	37.9	0.5	2.5	2.8

8	P14	37.8	0.3	2.9	2.3
8	P15	38.3	0.2	2.0	1.2
8	P16	38.4	-0.4	2.0	2.4
8	P17	38.5	0.5	1.8	0.7
8	P18	38.7	-0.5	1.9	4.7
8	P19	32.4	0.3	0.3	1.9
8	P20	32.1	0.9	0.3	2.6
8	P21	32.2	0.3	0.9	2.4
8	P22	32.1	0.2	1.5	2.0
8	P23	32.1	-0.2	1.4	1.2
8	P24	32.9	-0.6	0.0	1.3
8	P25	33.3	0.0	-0.7	3.8

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

DATA Continued

GAS TIGHT:

	Jan. 02 2003	Jan. 08 2003
Date		
Room Temp C	22	21
RH	33%	30%
Name	Troy Cook	Troy Cook

mOhm values		Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	38.5	0.0
1	P2	38.1	-0.6
1	P3	37.9	0.2
1	P4	37.9	1.0
1	P5	37.9	0.9
1	P6	38.3	0.6
1	P7	38.3	0.3
1	P8	38.1	0.7
1	P9	38.3	-0.1
1	P10	38.4	-0.2
1	P11	38.7	0.4
1	P12	38.9	0.3
1	P13	38.8	0.0
1	P14	38.7	-0.4
1	P15	38.5	0.1
1	P16	38.7	-0.4
1	P17	40.3	-0.6
1	P18	39.0	0.0
1	P19	38.8	-0.1
1	P20	38.5	-0.1
1	P21	38.7	0.7
1	P22	39.3	-0.1
1	P23	38.9	0.5
1	P24	38.0	0.9
1	P25	38.5	0.7
2	P1	31.5	-0.2
2	P2	32.3	1.4
2	P3	32.4	0.9
2	P4	32.9	0.5
2	P5	33.0	1.6
2	P6	33.0	0.7
2	P7	31.9	0.8
2	P8	38.2	0.2
2	P9	39.0	0.4
2	P10	38.8	0.3
2	P11	38.0	0.1

2	P12	39.1	0.3
2	P13	39.3	-0.6
2	P14	38.9	-0.2
2	P15	39.4	-0.6
2	P16	38.7	1.3
2	P17	38.9	0.5
2	P18	38.2	0.8
2	P19	32.5	0.8
2	P20	32.2	0.3
2	P21	32.9	0.2
2	P22	32.7	-0.3
2	P23	32.6	0.5
2	P24	32.7	0.4
2	P25	33.3	0.6
3	P1	39.3	0.9
3	P2	39.2	-0.3
3	P3	38.1	3.4
3	P4	38.8	2.1
3	P5	38.5	2.3
3	P6	39.6	-0.9
3	P7	39.1	1.1
3	P8	38.7	1.0
3	P9	38.1	2.2
3	P10	38.4	0.3
3	P11	38.4	-0.1
3	P12	38.4	0.9
3	P13	38.9	1.3
3	P14	38.0	1.8
3	P15	39.1	2.2
3	P16	39.5	1.8
3	P17	39.4	1.0
3	P18	39.4	1.3
3	P19	38.3	1.9
3	P20	38.8	0.5
3	P21	38.2	0.8
3	P22	38.2	0.0
3	P23	37.5	1.9
3	P24	38.3	1.0
3	P25	37.7	2.8
4	P1		
4	P2	31.7	0.0
4	P3	31.5	-0.1
4	P4	31.9	0.0
4	P5	30.5	0.4
4	P6	31.7	1.1
4	P7	31.6	-0.6
4	P8	38.5	1.8
4	P9	38.1	0.3
4	P10	38.6	0.4
4	P11	37.9	2.8

4	P12	37.7	1.5
4	P13	37.7	2.6
4	P14	38.0	1.3
4	P15	38.6	1.1
4	P16	38.0	1.2
4	P17	38.5	0.9
4	P18	39.0	-0.1
4	P19	33.0	-0.4
4	P20	32.0	1.7
4	P21	33.0	0.4
4	P22	31.9	0.9
4	P23	31.9	1.8
4	P24		
4	P25	32.7	1.7
5	P1	37.8	1.0
5	P2	37.6	0.4
5	P3	37.8	0.9
5	P4	38.5	0.5
5	P5	37.9	0.7
5	P6	38.9	0.8
5	P7	38.4	0.9
5	P8	38.4	1.5
5	P9	39.1	0.4
5	P10	39.1	-0.4
5	P11	39.0	0.1
5	P12	39.2	-0.2
5	P13	38.8	1.1
5	P14	39.0	-0.4
5	P15	38.6	0.5
5	P16	38.7	1.3
5	P17	38.2	0.5
5	P18	39.8	0.0
5	P19	39.5	0.4
5	P20	38.7	1.2
5	P21	39.9	-0.4
5	P22	38.9	-0.2
5	P23	39.4	-0.5
5	P24	38.6	0.4
5	P25	38.0	0.0
6	P1	31.4	0.7
6	P2	32.3	1.1
6	P3	32.4	0.3
6	P4	32.7	0.2
6	P5	32.1	0.6
6	P6	32.7	0.4
6	P7	31.5	1.0
6	P8	37.7	0.7
6	P9	38.0	1.0
6	P10	37.4	1.0
6	P11	37.9	0.7

6	P12	38.1	1.1
6	P13	38.5	0.4
6	P14	38.7	0.8
6	P15	39.2	1.3
6	P16	38.9	0.2
6	P17	39.2	0.0
6	P18	38.6	0.2
6	P19	32.5	-0.5
6	P20	32.9	-0.2
6	P21	32.9	0.2
6	P22	32.5	0.8
6	P23	32.7	0.3
6	P24	33.6	-1.1
6	P25	32.3	1.9
7	P1	38.0	-0.3
7	P2	37.4	0.6
7	P3	38.1	-0.3
7	P4	37.7	-0.7
7	P5	37.7	-0.7
7	P6	37.7	-0.5
7	P7	37.2	0.1
7	P8	37.0	-0.1
7	P9	37.5	-0.2
7	P10	37.6	-0.1
7	P11	38.2	1.7
7	P12	37.4	0.5
7	P13	37.1	0.1
7	P14	37.2	0.2
7	P15	36.9	0.4
7	P16	38.0	0.2
7	P17	37.8	-0.7
7	P18	37.4	-0.2
7	P19	37.5	-0.2
7	P20	37.7	-0.5
7	P21	36.8	0.1
7	P22	38.0	-0.5
7	P23	37.3	0.0
7	P24	36.8	0.1
7	P25	36.3	0.0
8	P1	31.5	0.7
8	P2	32.0	0.0
8	P3	31.6	0.2
8	P4	31.7	0.2
8	P5	32.0	0.5
8	P6	31.3	0.2
8	P7	30.8	0.3
8	P8	38.8	-0.8
8	P9	37.7	-0.6
8	P10	38.9	-1.0
8	P11	38.6	-0.5

8	P12	37.5	0.1
8	P13	37.4	-0.1
8	P14	36.9	0.5
8	P15	37.7	-0.1
8	P16	37.2	-0.3
8	P17	37.0	0.5
8	P18	38.1	0.8
8	P19	31.5	0.3
8	P20	31.8	0.2
8	P21	32.3	-0.8
8	P22	32.0	0.2
8	P23	31.8	0.6
8	P24	32.1	0.4
8	P25	31.2	0.0

Tracking Code: TC0251--0065	Part #: QTS-100-01-L-D-RA/QSS-100-01-L-D-RA
Part description: QTS/QSS RA	

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: THL-01
Description: Temperature/Humidity Chart Recorder
Manufacturer: Dickson
Model: THDX
Serial #: 9316255
Accuracy: Temp: +/- 1C; Humidity: +/-2% RH (0 - 60%) +/- 3% RH (61 - 95%).
… Last Cal: 7/15/02, Next Cal: 7/15/03

Equipment #: PS-01
Description: System Power Supply
Manufacturer: Hewlett Packard
Model: HP 6033A
Serial #: (HP) 3329A-07330
Accuracy: See Manual 10/16/02- Had a fuse replaced and equipment was re-calibrated.
… Last Cal10/16/02, Next Cal: 10/31/03

Equipment #: MO-02
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0780546
Accuracy: See Manual
… Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: OGP-01
Description: 6"X 6" Video Measuring Machine
Manufacturer: Optical Gauging Products
Model: Smartscope 200 CFOV
Serial #: SF2001956
Accuracy: See Manual
… Last Cal: 3/12/2003, Next Cal: 9/12/03

Equipment #: TCT-01
Description: Test Stand
Manufacturer: Chatillon
Model: TCD-1000
Serial #: 05 23 00 02
Accuracy: Speed Accuracy: +/-5% of max speed; Displacement: +/-.5% or +/-.005, whichever is greater.
… Last Cal: 6/07/02, Next Cal: 6/07/03

Equipment #: DFGRS-R-ND-02
Description: Chatillon Remote Load Gage
Manufacturer: Chatillon
Model: DFGRS-R-ND
Serial #: A38240
Accuracy: +/- 0.3% of Full Scale +/- 1 LSC +/- 0.3% of Full Scale +/- 1 LSC
… Last Cal: 6/10/02, Next Cal: 6/10/03

Equipment #: LC-50
Description: Chatillon 50 Lb. Remote Load Cell
Manufacturer: Chatillon
Model: Remote Load Cell
Serial #: F31963
Accuracy: +/- .01 Lb.
… Last Cal: 6/10/02, Next Cal: 6/10/03

Equipment #: LC-5N
Description: 5 N Load Cell
Manufacturer: Dillon
Model: TC2 Load Cell
Serial #: 5370
Accuracy: +/- 0.2% of Full Scale +/- 1 LSC
… Last Cal: 5/6/02, Next Cal: 5/6/03

Equipment #: TCT-02
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon
Model: PCM
Serial #: 280769
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 8/15/01, Next Cal: 8/31/03

Equipment #: OV-03
Description: Cascade Tek Forced Air Oven
Manufacturer: Cascade Tek
Model: TFO-5
Serial #: 9316255
Accuracy: Temp. Stability: +/-.1C/C change in ambient
… Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-7800
Serial #: 30676
Accuracy: See Manual
… Last Cal: 5/13/02, Next Cal: 5/13/03

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy
… Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: MO-01
Description: Micro-Ohmeter
Manufacturer: Keithley
Model: 580
Serial #: 0772740
Accuracy: See Manual
… Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: MO-03
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0791975
Accuracy: See Manual
… Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: TC090601-103/105
Description: IC Thermocouple-103/105
Manufacturer: Samtec
Serial #: TC090601-103/105
Accuracy: +/- 1 degree C