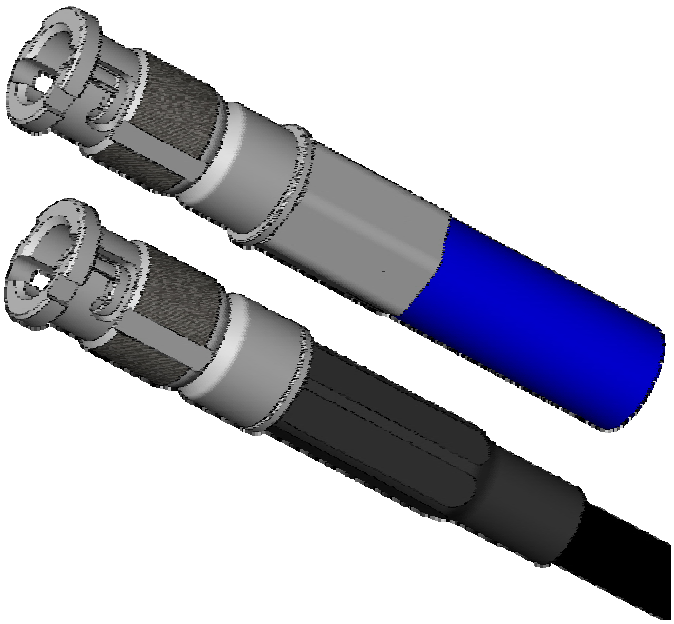
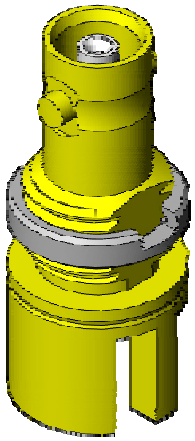
Project Number: Design Qualification Test Report	Tracking Code: 166103_Report_Rev_1		
Requested by: Chris Shelly	Date: 6/22/2012	Product Rev: N/A	
Part #: RFB6T-H4SP2-606060-0150 \ HDBNC-J-P-HN-ST-EM1	Lot #: N/A	Tech: Craig Ryan	Eng: Eric Mings
Part description: RFB6T\ HDBNC			Qty to test: 80
Test Start: 10/20/2011	Test Completed: 11/29/2011		





DESIGN QUALIFICATION TEST REPORT

RFB6T\ HDBNC
RFB6T-H4SP2-606060-0150 \ HDBNC-J-P-HN-ST-EM1

CERTIFICATION

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

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SCOPE

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

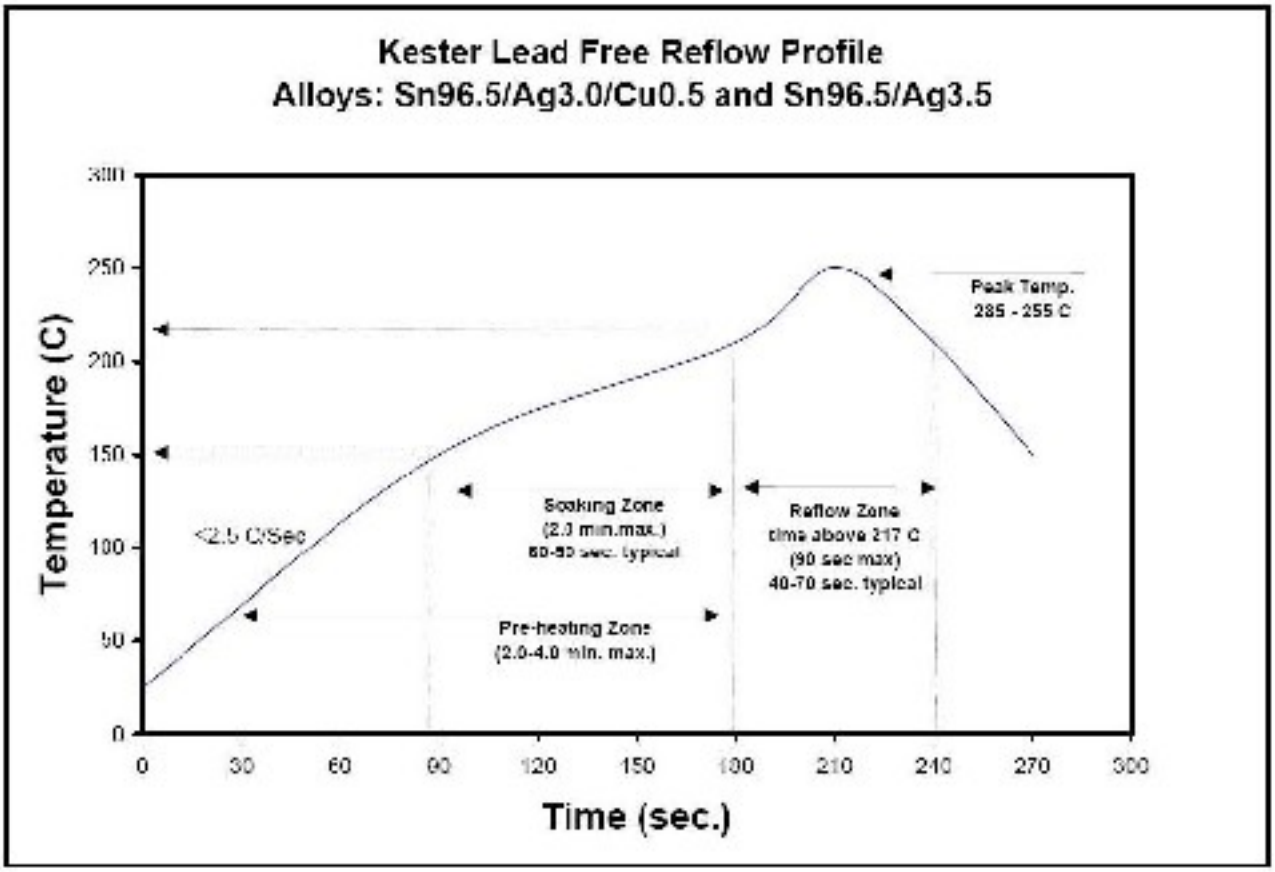
APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) After soldering, the parts to be used for LLCR testing were cleaned according to TLWI-0001.
4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
5) The automated procedure is used with aqueous compatible soldering materials.
6) Parts not intended for testing LLCR are visually inspected and cleaned if necessary.
7) Any additional preparation will be noted in the individual test sequences.
8) Solder Information: Lead Free
9) Re-Flow Time/Temp: See accompanying profile.
10) Samtec Test PCBs used: PCB-103328-TST

TYPICAL OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

Gas Tight

TEST STEP	GROUP A1 (8 MIN) HDBNC-J-P-HN-ST-EM1 RFB6T-H4SP2-606060-0150 SIGNAL & GROUND
01	LLCR-1
02	Gas Tight
03	LLCR-2

Gas Tight = EIA-364-36A

LLCR = EIA-364-23, LLCR

use Keithley 580 in the dry circuit mode, 10 mA Max

Normal Force

TEST	GROUP B1	GROUP B2	GROUP B3	GROUP B4
STEP	(10 MIN) HDBNC-J-P-H-ST-EM1-SKT	(10 MIN) HDBNC-J-P-H-ST-EM1-SKT HDBNC-P-C-H-ST-CA6-PIN	(10 MIN) HDBNC-P-C-N-ST-SHL	(10 MIN) HDBNC-P-C-N-ST-SHL HDBNC-J-P-N-ST-EM1-SHL
1	Contact Gaps	Contact Gaps	Contact Gaps	Contact Gaps
02	Setup Approved	Thermal Aging (Mated and Undisturbed)	Setup Approved	Thermal Aging (Mated and Undisturbed)
03	Normal Force	Contact Gaps	Normal Force	Contact Gaps
04		Setup Approved		Setup Approved
05		Normal Force		Normal Force

Thermal Aging = EIA-364-17, Test Condition 4 (105°C)

Time Condition 'B' (250 Hours)

Normal Force = EIA-364-04

(Perpendicular) Displacement Force = 12.7 mm/min ± 6 mm/min

Spec is 50 N @ 1 mm displacement

Contact Gaps / Height - No standard method. Usually measured optically

Gaps to be taken on a minimum of 20% of each part tested

FLOWCHARTS Continued

Thermal Aging

TEST	GROUP C1
STEP	(8 MIN) HDBNC-J-P-HN-ST-EM1 RFB6T-H4SP2-606060-0150 SIGNAL & GROUND
1	Contact Gaps
2	LLCR-1
3	Thermal Aging (Mated and Undisturbed)
4	LLCR-2
5	Contact Gaps

Thermal Aging = EIA-364-17, Test Condition 4 (105°C)
Time Condition 'B' (250 Hours)
Mating / Unmating Forces = EIA-364-13
Contact Gaps / Height - No standard method. Usually measured optically.
Gaps to be taken on a minimum of 20% of each part tested
LLCR = EIA-364-23, LLCR
20 mV Max, 100 mA Max
Use Keithley 580 or 3706 in 4 wire dry circuit mode

Durability/Gaps

TEST STEP	GROUP D1 (8 MIN) HDBNC-J-P-HN-ST-EM1 RFB6T-H4SP2-606060-0150 SIGNAL & GROUND	GROUP D2 (8 MIN) HDBNC-J-P-HN-ST-EM1 RFB6T-H4SP2-606060-0150 SIGNAL & GROUND	GROUP D3 (8 MIN) HDBNC-J-P-HN-ST-EM1 RFB6T-H4SP2-606060-0150 SIGNAL & GROUND	GROUP D4 (8 MIN) HDBNC-J-P-HN-ST-EM1 RFB6T-H4SP2-606060-0150 SIGNAL & GROUND	GROUP D5 (8 MIN) HDBNC-J-P-HN-ST-EM1 RFB6T-H4SP2-606060-0150 SIGNAL & GROUND
01	Contact Gaps	Contact Gaps	Contact Gaps	Contact Gaps	Contact Gaps
02	LLCR-1	LLCR-1	LLCR-1	LLCR-1	LLCR-1
03	100 Cycles	200 Cycles	300 Cycles	400 Cycles	500 Cycles
04	Contact Gaps	Contact Gaps	Contact Gaps	Contact Gaps	Contact Gaps
05	LLCR-2	LLCR-2	LLCR-2	LLCR-2	LLCR-2
06	Thermal Shock (Mated and Undisturbed)	Thermal Shock (Mated and Undisturbed)	Thermal Shock (Mated and Undisturbed)	Thermal Shock (Mated and Undisturbed)	Thermal Shock (Mated and Undisturbed)
07	LLCR-3	LLCR-3	LLCR-3	LLCR-3	LLCR-3
08	Cyclic Humidity (Mated and Undisturbed)	Cyclic Humidity (Mated and Undisturbed)	Cyclic Humidity (Mated and Undisturbed)	Cyclic Humidity (Mated and Undisturbed)	Cyclic Humidity (Mated and Undisturbed)
09	LLCR-4	LLCR-4	LLCR-4	LLCR-4	LLCR-4

Thermal Shock = EIA-364-32, Table II, Test Condition I:
-55°C to +85°C 1/2 hour dwell, 100 cycles
Humidity = EIA-364-31, Test Condition B (240 Hours)
and Method III (+25°C to +65°C @ 90% RH to 98% RH)
ambient pre-condition and delete steps 7a and 7b
Mating / Unmating Forces = EIA-364-13
Contact Gaps / Height - No standard method. Usually measured optically.
Gaps to be taken on a minimum of 20% of each part tested
LLCR = EIA-364-23, LLCR
20 mV Max, 100 mA Max
Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued

IR & DWV

TEST STEP	GROUP E1 (2 MIN) RFB6T-H4SP2-606060-0150 HDBNC-J-P-HN-ST-EM1 Break Down - Pin to Ground	GROUP E2 (2 MIN) RF68T-H4SP2-606060-0150 Break Down - Pin to Ground	GROUP E3 (2 MIN) HDBNC-J-P-HN-ST-EM1 Break Down - Pin to Ground	GROUP F1 (2 MIN) RFB6T-H4SP2-606060-0150 HDBNC-J-P-HN-ST-EM1 IR/DWV - Pin to Ground
01	DWV/Break Down Voltage	DWV/Break Down Voltage	DWV/Break Down Voltage	IR & DWV at test voltage (on both mated sets and on each connector unmated)
02				Thermal Shock (both sets unmated)
03				IR & DWV at test voltage (on both mated sets and on each connector unmated)
04				Cyclic Humidity (both sets unmated)
05				IR & DWV at test voltage (on both mated sets and on each connector unmated)

DWV on group B1 to be performed at Test Voltage
DWV test voltage PER BS EN 122340:2002 Minimum or equal to 75% of the lowest break down voltage from group A1, A2 or A3
Thermal Shock = EIA-364-32, Table II, Test Condition I:
-55°C to +85°C 1/2 hour dwell, 100 cycles
Humidity = EIA-364-31, Test Condition B (240 Hours)
and Method III (+25°C to +65°C @ 90% RH to 98% RH)
ambient pre-condition and delete steps 7a and 7b
IR = EIA-364-21
DWV = EIA-364-20, Test Condition 1

Mechanical Shock / Vibration / LLCR

TEST	GROUP G1
STEP	(8 MIN) RFB6T-H4SP2-606060-0150 HDBNC-J-P-HN-ST-EM1 SIGNAL & GROUND
01	LLCR-1
02	Shock
03	Vibration
04	LLCR-2

Mechanical Shock = EIA 364-27 Half Sine,
100 g's, 6 milliSeconds (Condition "C") each axis
Vibration = EIA 364-28, Random Vibration
7.56 g RMS, Condition VB --- 2 hours/axis
LLCR = EIA-364-23, LLCR
20 mV Max, 100 mA Max
Use Keithley 580 or 3706 in 4 wire dry circuit mode

FLOWCHARTS Continued

Shock / Vibration / nanoSecond Event Detection

TEST	GROUP H1
STEP	(8 MIN) RFB6T-H4SP2-606060-0150 HDBNC-J-P-HN-ST-EM1 SIGNAL & GROUND
01	Event Detection, Shock
02	Event Detection, Vibration

Mechanical Shock = EIA 364-27 Half Sine,
100 g's, 6 milliSeconds (Condition "C") each axis
Vibration = EIA 364-28, Random Vibration
7.56 g RMS, Condition VB --- 2 hours/axis
Event detection requirement during Shock / Vibration is 50 nanoseconds minimum

Connector Pull

TEST STEP	GROUP 3 a 5 Pieces HDBNC-P-C-H-ST-CA6 -PIN soldered to CCA-1694A	GROUP 3 b 5 Pieces HDBNC-P-C-H-ST-CA8 -PIN soldered to CCA-1855A	GROUP 3 c 5 Pieces RFB6T-H4SP2-606060-0150
	Center contact only to cable 0°	Center contact only to cable 0°	SIG & GND 0° Connector to Cable
01	Pull test, Continuity	Pull test, Continuity	Pull test, Continuity

Monitor continuity on both center and outer contactcs and pull; record forces when continuity fails on both the center and outer contacts.

FLOWCHARTS Continued

Durability/Gaps

TEST STEP	GROUP D6 (8 MIN) HDBNC-J-P-GN-ST-EM1 RFB6T-H4SP3-606060-0150 SIGNAL & GROUND
01	Contact Gaps
02	LLCR-1
03	100 Cycles
04	Contact Gaps
05	LLCR-2
06	Thermal Shock (Mated and Undisturbed)
07	LLCR-3
08	Cyclic Humidity (Mated and Undisturbed)
09	LLCR-4

Thermal Shock = EIA-364-32, Table II, Test Condition I:
-55°C to +85°C 1/2 hour dwell, 100 cycles
Humidity = EIA-364-31, Test Condition B (240 Hours)
and Method III (+25°C to +65°C @ 90% RH to 98% RH)
ambient pre-condition and delete steps 7a and 7b
Mating / Unmating Forces = EIA-364-13
Contact Gaps / Height - No standard method. Usually measured optically.
Gaps to be taken on a minimum of 20% of each part tested
LLCR = EIA-364-23, LLCR
20 mV Max, 100 mA Max
Use Keithley 580 or 3706 in 4 wire dry circuit mode

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

1) EIA-364-32, *Thermal Shock (Temperature Cycling) Test Procedure for Electrical Connectors.*
2) Test Condition 1: -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 stressing in the mated condition.

THERMAL:

1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors.*
2) Test Condition 4 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 stressing in the mated condition.

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 stressing in the mated condition.

CONTACT GAPS:

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

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 test, the samples were characterized to assure the low nanosecond event being monitored will trigger the detector.
3) After characterization it was determined the test samples could be monitored for 50 nanosecond events

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

LLCR:

1) 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

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 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 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.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

NORMAL FORCE (FOR CONTACTS TESTED OUTSIDE THE HOUSING):

1) Reference document: EIA-364-04, *Normal Force Test Procedure for Electrical Connectors*.
2) The contacts shall be tested in the loose state, *not* inserted in connector housing.
3) The contacts shall be prepared to allow access to the spring member at the same attitude and deflection level as would occur in actual use.
4) In the event that portions of the contact prevent insertion of the test probe and/or deflection of the spring member under evaluation, said material shall be removed leaving the appropriate contact surfaces exposed.
5) In the case of multi-tine contacts, each tine shall be tested independently on separate samples as required.
6) The connector housing shall be simulated, if required, in order to provide an accurate representation of the actual contact system performance.
7) A holding fixture shall be fashioned to allow the contact to be properly deflected.
8) 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 µm (0.0002”).
9) The probe shall be attached to a Dillon P/N 49761-0105, 5 N (1.1 Lb) load cell providing an accuracy of ± 0.2%.
10) The nominal deflection rate shall be 5 mm (0.2”)/minute.
11) Unless otherwise noted a minimum of five contacts shall be tested.
12) The force/deflection characteristic to load and unload each contact shall be repeated five times.
13) The system shall utilize the TC^2 software in order to acquire and record the test data.
14) The permanent set of each contact shall be measured within the TC^2 software.
15) 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.

INSULATION RESISTANCE (IR):

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

1) PROCEDURE:
    a. Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Adjacent Contacts or Signal-to-Ground
        ii. Electrification Time 2.0 minutes
        iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
2) MEASUREMENTS:
3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 1000 megohms.

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

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

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

CONNECTOR PULL:

1) Secure cable near center and pull on connector
    a. At 0°, in-line with cable

Fig. 1
(Typical set-up, actual part not depicted.)
0° Connector pull, notice the electrical continuity hook-up wires.

RESULTS

Contact Gaps:

Normal Force Group

HDBNC-J-P-H-ST-EM1-SKT
Normal Force Initial T1

- **Initial**
  - **Min---------- 0.2792 mm**
  - **Max ---------- 0.3032 mm**

Normal Force Thermal T1

- **Initial**
  - **Min---------- 0.2800 mm**
  - **Max ---------- 0.3020 mm**
- **After Thermal**
  - **Min---------- 0.2781 mm**
  - **Max ---------- 0.3072 mm**

HDBNC-P-C-N-ST-SHL
Normal Force Initial T1

- **Initial**
  - **Min---------- 3.6740 mm**
  - **Max ---------- 3.7990 mm**

Normal Force Thermal T1

- **Initial**
  - **Min---------- 3.6480 mm**
  - **Max ---------- 3.7620 mm**
- **After Thermal**
  - **Min---------- 3.6212 mm**
  - **Max ---------- 3.6943 mm**

Thermal Aging Group

Signal Pin

- **Initial**
  - **Min---------- 0.2810 mm**
  - **Max ---------- 0.3030 mm**
- **After Thermal**
  - **Min---------- 0.2664 mm**
  - **Max ---------- 0.3032 mm**

Ground Pin

- **Initial**
  - **Min---------- 3.4290 mm**
  - **Max ---------- 3.7490 mm**
- **After Thermal**
  - **Min---------- 3.4582 mm**
  - **Max ---------- 3.7111 mm**

RESULTS Continued

Contact Gaps:

Durability/Gaps Group
HDBNC-J-P-GN-ST-EM1/RFB6T-H4SP3-606060-0150

- **Initial**
  - **Min---------- 0.2959 mm**
  - **Max---------- 0.3150 mm**
- **After 100 cycles**
  - **Min---------- 0.3069 mm**
  - **Max---------- 0.3162 mm**

Durability/Gaps Group
100 cycles
Signal Pin

- **Initial**
  - **Min---------- 0.2850 mm**
  - **Max---------- 0.3111 mm**
- **After 100 cycles**
  - **Min---------- 0.2834 mm**
  - **Max---------- 0.3132 mm**

Ground Pin

- **Initial**
  - **Min---------- 3.3960 mm**
  - **Max---------- 3.7265 mm**
- **After 100 cycles**
  - **Min---------- 3.4315 mm**
  - **Max---------- 3.6977 mm**

200 cycles
Signal Pin

- **Initial**
  - **Min---------- 0.2841 mm**
  - **Max---------- 0.2981 mm**
- **After 200 cycles**
  - **Min---------- 0.2893 mm**
  - **Max---------- 0.3130 mm**

Ground Pin

- **Initial**
  - **Min---------- 3.5864 mm**
  - **Max---------- 3.7015 mm**
- **After 200 cycles**
  - **Min---------- 3.6025 mm**
  - **Max---------- 3.6577 mm**

RESULTS Continued

Contact Gaps:

Durability/Gaps Group

300 cycles

Signal Pin

- **Initial**
  - **Min---------- 0.2811 mm**
  - **Max---------- 0.2971 mm**
- **After 300 cycles**
  - **Min---------- 0.2723 mm**
  - **Max---------- 0.3073 mm**

Ground Pin

- **Initial**
  - **Min---------- 3.5756 mm**
  - **Max---------- 3.6978 mm**
- **After 300 cycles**
  - **Min---------- 3.5732 mm**
  - **Max---------- 3.6972 mm**

400 cycles

Signal Pin

- **Initial**
  - **Min---------- 0.2821 mm**
  - **Max---------- 0.3020 mm**
- **After 400 cycles**
  - **Min---------- 0.2822 mm**
  - **Max---------- 0.3174 mm**

Ground Pin

- **Initial**
  - **Min---------- 3.5462 mm**
  - **Max---------- 3.6907 mm**
- **After 400 cycles**
  - **Min---------- 3.5139 mm**
  - **Max---------- 3.6785 mm**

500 cycles

Signal Pin

- **Initial**
  - **Min---------- 0.2841 mm**
  - **Max---------- 0.2991 mm**
- **After 500 cycles**
  - **Min---------- 0.2872 mm**
  - **Max---------- 0.3098 mm**

Ground Pin

- **Initial**
  - **Min---------- 3.5645 mm**
  - **Max---------- 3.7495 mm**
- **After 500 cycles**
  - **Min---------- 3.5550 mm**
  - **Max---------- 3.6597 mm**

RESULTS Continued

Normal Force at 0.0015 in deflection

HDBNC-J-P-H-ST-EM1-SKT

- **Initial**
  - **Min----------64.60 gf Set ------0.0000 in**
  - **Max ---------- 116.80 gf Set ------0.0000 in**
- **Thermal**
  - **Min----------89.40 gf Set------0.0000 in**
  - **Max ---------- 128.40 gf Set------0.0001 in**

Normal Force at 0.0041 in deflection

HDBNC-P-C-N-ST-SHL

- **Initial**
  - **Min---------- 177.50 gf Set ------0.0000 in**
  - **Max ---------- 216.50 gf Set ------0.0001 in**
- **Thermal**
  - **Min---------- 173.90 gf Set------0.0004 in**
  - **Max ---------- 235.10 gf Set------0.0010 in**

Connector Pull

HDBNC-P-C-H-ST-CA6-PIN

- **Min----------38.50 Lbs**
- **Max ----------40.50 Lbs**

HDBNC-P-C-H-ST-CA8-PIN

- **Min----------17.50 Lbs**
- **Max ----------18.00 Lbs**

RFB6T-H4SP2-606060-0150

- **Min----------34.50 Lbs**
- **Max ----------41.50 Lbs**

RESULTS Continued

Insulation Resistance minimums, IR

- **Initial**
  - **Mated ---------- 100000Meg Ω----------Passed**
  - **Unmated----------50000Meg Ω ----------Passed**
- **Thermal**
  - **Mated ---------- 100000Meg Ω ----------Passed**
  - **Unmated---------- 100000Meg Ω ----------Passed**
- **Humidity**
  - **Mated ---------- 100000Meg Ω ----------Passed**
  - **Unmated---------- 100000Meg Ω ----------Passed**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Breakdown Voltage ---------- 1000 VAC**
  - **Test Voltage----------750 VAC**
  - **Working Voltage----------250 VAC**
- **Initial DWV----------Passed**
- **Thermal DWV ----------Passed**
- **Humidity DWV ----------Passed**

RESULTS Continued

LLCR Gas Tight (16 LLCR test points)

- **Initial ---------- 11.33mOhms Max**
- **Gas-Tight**
  - **<= +5.0 mOhms ---------- 16 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**

LLCR Thermal Aging (16 LLCR test points)

- **Initial ---------- 11.93mOhms Max**
- **Thermal**
  - **<= +5.0 mOhms ---------- 15 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 +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Mechanical Shock & Random Vibration (16 LLCR test points)

- **Initial ---------- 16.29mOhms Max**
- **Shock & Vibration**
  - **<= +5.0 mOhms ---------- 14 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

Mechanical Shock & Random Vibration:

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

RESULTS Continued

LLCR Durability:

100 cycles (16 LLCR test points)

- **Initial ---------- 12.77mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ---------- 14 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 11 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 2 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 14 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

200 cycles (16 LLCR test points)

- **Initial ---------- 11.46mOhms Max**
- **Durability, 200 Cycles**
  - **<= +5.0 mOhms ---------- 9 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 2 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 13 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 1 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 2 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 9 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 5 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 1 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

LLCR Durability:

300 cycles (16 LLCR test points)

- **Initial ---------- 11.37mOhms Max**
- **Durability, 300 Cycles**
  - **<= +5.0 mOhms ---------- 11 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 2 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 13 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 10 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 1 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

400 cycles (16 LLCR test points)

- **Initial ---------- 12.94mOhms Max**
- **Durability, 400 Cycles**
  - **<= +5.0 mOhms ---------- 10 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 3 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 ---------- 12 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 11 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 4 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 1 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**

RESULTS Continued

LLCR Durability:

500 cycles (16 LLCR test points)

- **Initial ---------- 11.88mOhms Max**
- **Durability, 500 Cycles**
  - **<= +5.0 mOhms ---------- 12 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 2 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 ---------- 16 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 14 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Durability:

HDBNC-J-P-GN-ST-EM1/RFB6T-H4SP3-606060-0150

100 cycles (16 LLCR test points)

- **Initial ---------- 13.59mOhms Max**
- **Durability, 500 Cycles**
  - **<= +5.0 mOhms ---------- 15 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 +2000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+2000 mOhms ---------- 0 Points ---------- Open Failure**
- **Thermal**
  - **<= +5.0 mOhms ---------- 11 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 2 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**
- **Humidity**
  - **<= +5.0 mOhms ---------- 11 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 3 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 2 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**

DATA SUMMARIES

Contact Gaps:

Normal Force Group (HDBNC-J-P-H-ST-EM1-SKT)

Normal Force Initial T1

Pin Type 1	
Signal	
Nominal	0.31
Hi Limit	0.33
Lo Limit	0.28
Min	0.2792
Max	0.3032
Avg	0.2885
St. Dev.	0.0069
Count	10

Normal Force Thermal T1

Initial

Pin Type 1	
Signal	
Nominal	0.31
Hi Limit	0.33
Lo Limit	0.28
Min	0.2800
Max	0.3020
Avg	0.2880
St. Dev.	0.0070
Count	10

After Thermal

Pin Type 1	
Signal	
Nominal	0.31
Hi Limit	0.33
Lo Limit	0.28
Min	0.2781
Max	0.3072
Avg	0.2919
St. Dev.	0.0086
Count	10

DATA SUMMARIES Continued

Contact Gaps:

Normal Force Group (HDBNC-P-C-N-ST-SHL)

Normal Force Initial T1

Pin Type 2	
Ground	
Nominal	3.73
Hi Limit	3.76
Lo Limit	3.7
Min	3.6740
Max	3.7990
Avg	3.7150
St. Dev.	0.0430
Count	10

Normal Force Thermal T1

Initial

Pin Type 2	
Ground	
Nominal	3.73
Hi Limit	3.76
Lo Limit	3.7
Min	3.6480
Max	3.7260
Avg	3.6990
St. Dev.	0.0260
Count	10

After Thermal

Pin Type 2	
Ground	
Nominal	3.73
Hi Limit	3.76
Lo Limit	3.7
Min	3.6212
Max	3.6943
Avg	3.6648
St. Dev.	0.0220
Count	10

DATA SUMMARIES Continued

Contact Gaps:

Thermal Aging Group (HDBNC-J-P-HN-ST-EM1/RFB6T-H4SP2-606060-0150)

Initial

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.7
Min	0.2810	Min	3.4290
Max	0.3030	Max	3.7490
Avg	0.2940	Avg	3.6430
St. Dev.	0.0080	St. Dev.	0.0930
Count	8	Count	8

After Thermal

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.7
Min	0.2664	Min	3.4582
Max	0.3032	Max	3.7111
Avg	0.2945	Avg	3.6401
St. Dev.	0.0116	St. Dev.	0.0745
Count	8	Count	8

Durability/Gaps Group (HDBNC-J-P-GN-ST-EM1/RFB6T-H4SP3-606060-0150)

Initial

Pin Type 1	
Nominal	0.31
Hi Limit	0.3300
Lo Limit	0.2800
Min	0.2959
Max	0.3150
Avg	0.3021
St. Dev.	0.0059
Count	8

After Thermal

Pin Type 1	
Nominal	0.31
Hi Limit	0.33
Lo Limit	0.28
Min	0.3069
Max	0.3162
Avg	0.3120
St. Dev.	0.0034
Count	8

DATA SUMMARIES Continued

Contact Gaps:

Durability/Gaps Group (100 Cycles)

Initial

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2850	Min	3.3960
Max	0.3111	Max	3.7265
Avg	0.2916	Avg	3.6121
St. Dev.	0.0085	St. Dev.	0.0974
Count	8	Count	8

After 100 cycles

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2834	Min	3.4135
Max	0.3132	Max	3.6977
Avg	0.2950	Avg	3.6291
St. Dev.	0.0094	St. Dev.	0.0939
Count	8	Count	8

Durability/Gaps Group (200 Cycles)

Initial

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2841	Min	3.5864
Max	0.2981	Max	3.7015
Avg	0.2903	Avg	3.6474
St. Dev.	0.0051	St. Dev.	0.0423
Count	8	Count	8

After 200 Cycles

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2893	Min	3.6025
Max	0.3130	Max	3.6577
Avg	0.3002	Avg	3.6364
St. Dev.	0.0080	St. Dev.	0.0202
Count	8	Count	8

DATA SUMMARIES Continued

Contact Gaps:

Durability/Gaps Group (300 Cycles)

Initial

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2811	Min	3.5756
Max	0.2971	Max	3.6978
Avg	0.2894	Avg	3.6453
St. Dev.	0.0061	St. Dev.	0.0451
Count	8	Count	8

After 300 Cycles

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2723	Min	3.5732
Max	0.3073	Max	3.6972
Avg	0.2970	Avg	3.6288
St. Dev.	0.0114	St. Dev.	0.0394
Count	8	Count	8

Durability/Gaps Group (400 Cycles)

Initial

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2821	Min	3.5462
Max	0.3020	Max	3.6907
Avg	0.2911	Avg	3.6288
St. Dev.	0.0074	St. Dev.	0.0548
Count	8	Count	8

After 400 Cycles

Pin Type 1		Pin Type 2	
Signal		Ground	
Nominal	0.31	Nominal	3.73
Hi Limit	0.33	Hi Limit	3.76
Lo Limit	0.28	Lo Limit	3.70
Min	0.2822	Min	3.5139
Max	0.3174	Max	3.6785
Avg	0.3003	Avg	3.6163
St. Dev.	0.0106	St. Dev.	0.0592
Count	8	Count	8

DATA SUMMARIES Continued

Contact Gaps:

Durability/Gaps Group (500 Cycles)

Initial

Pin Type 1		*Pin Type 2*	
Signal		**Ground**	
Nominal	0.31	*Nominal*	3.73
Hi Limit	0.33	*Hi Limit*	3.76
Lo Limit	0.28	*Lo Limit*	3.70
Min	0.2841	*Min*	3.5645
Max	0.2991	*Max*	3.7495
Avg	0.2911	*Avg*	3.6392
St. Dev.	0.0055	*St. Dev.*	0.0539
Count	8	*Count*	8

After 500 Cycles

Pin Type 1		*Pin Type 2*	
Signal		**Ground**	
Nominal	0.31	*Nominal*	3.73
Hi Limit	0.33	*Hi Limit*	3.76
Lo Limit	0.28	*Lo Limit*	3.70
Min	0.2872	*Min*	3.5550
Max	0.3098	*Max*	3.6597
Avg	0.2975	*Avg*	3.6178
St. Dev.	0.0080	*St. Dev.*	0.0326
Count	8	*Count*	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.

HDBNC-J-P-H-ST-EM1-SKT

	Deflections in inches Forces in Grams										
Initial	**0.0002**	**0.0003**	**0.0005**	**0.0006**	**0.0008**	**0.0009**	**0.0011**	**0.0012**	**0.0014**	**0.0015**	***SET***
Averages	8.77	15.57	21.65	30.17	39.42	49.98	60.71	72.26	83.79	95.48	0.0000
Min	5.60	11.30	15.50	22.00	26.80	33.20	38.60	46.20	55.80	64.60	0.0000
Max	11.70	20.80	27.70	39.20	53.30	66.60	76.90	93.00	104.00	116.80	0.0000
St. Dev	2.130	3.237	4.017	5.029	6.960	9.024	10.326	12.461	13.193	14.514	0.0000
Count	10	10	10	10	10	10	10	10	10	10	10

After	Deflections in inches Forces in Grams										
Thermals	**0.0002**	**0.0003**	**0.0005**	**0.0006**	**0.0008**	**0.0009**	**0.0011**	**0.0012**	**0.0014**	**0.0015**	***SET***
Averages	8.89	21.27	33.84	46.78	59.31	72.70	85.20	96.46	105.81	113.09	0.0000
Min	2.40	12.30	24.70	31.30	40.00	49.00	58.50	68.30	78.00	89.40	0.0000
Max	13.40	30.00	43.70	60.70	75.90	90.20	102.90	115.70	122.30	128.40	0.0001
St. Dev	3.832	5.616	6.580	9.305	11.021	12.625	14.554	14.967	14.398	12.142	0.0000
Count	10	10	10	10	10	10	10	10	10	10	10

HDBNC-P-C-N-ST-SHL

	Deflections in inches Forces in Grams										
Initial	**0.0004**	**0.0008**	**0.0012**	**0.0016**	**0.0021**	**0.0025**	**0.0029**	**0.0033**	**0.0037**	**0.0041**	***SET***
Averages	21.57	43.91	66.68	89.28	111.99	134.09	155.69	173.89	186.54	194.76	0.0000
Min	18.50	35.90	56.30	75.90	97.60	118.70	138.90	160.30	170.70	177.50	0.0000
Max	25.10	50.60	75.50	99.90	123.80	147.50	169.60	187.70	203.90	216.50	0.0001
St. Dev	2.020	4.578	6.095	7.652	8.498	9.486	10.204	8.462	10.979	11.731	0.0000
Count	10	10	10	10	10	10	10	10	10	10	10

After	Deflections in inches Forces in Grams										
Thermals	**0.0011**	**0.0011**	**0.0012**	**0.0016**	**0.0021**	**0.0025**	**0.0029**	**0.0033**	**0.0037**	**0.0041**	***SET***
Averages	28.43	28.43	36.23	61.16	86.05	111.13	136.16	161.34	182.70	196.11	0.0006
Min	3.60	3.60	11.10	39.20	67.80	94.20	123.30	144.60	164.60	173.90	0.0004
Max	42.90	42.90	52.30	80.00	108.00	137.40	164.80	193.50	220.80	235.10	0.0010
St. Dev	12.130	12.130	12.794	12.871	13.122	14.417	15.579	17.190	20.879	21.858	0.0002
Count	10	10	10	10	10	10	10	10	10	10	10

DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

	Pin to Ground		
	Mated	Unmated	Unmated
Minimum	**RFB6T/HDBNC**	**RFB6T**	**HDBNC**
Initial	100000	50000	100000
Thermal	100000	100000	100000
Humidity	100000	100000	100000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Voltage Rating Summary	
Minimum	**RFB6T/HDBNC**
Break Down Voltage	1000
Test Voltage	750
Working Voltage	250

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

DATA SUMMARIES Continued

LLCR Durability (100 cycles)

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms:---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	2011-10-31	2011-11-29	2011-11-16	2011-11-29
Room Temp (Deg C)	23	22	22	22
Rel Humidity (%)	32	30	36	30
Technician	Craig Ryan	Craig Ryan	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	11.05	0.45	0.59	0.45
St. Dev.	0.79	0.38	0.48	0.38
Min	10.24	0.02	0.12	0.11
Max	12.77	1.19	1.59	1.33
Summary Count	8	8	8	8
Total Count	8	8	8	8
	Pin Type 2: Ground			
Average	3.93	5.09	5.67	3.72
St. Dev.	0.91	2.17	3.73	1.80
Min	3.10	2.60	0.86	1.90
Max	5.94	9.59	10.92	7.13
Summary Count	8	8	8	8
Total Count	8	8	8	8

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**14**	**2**	**0**	**0**	**0**	**0**
Therm Shck	**11**	**3**	**2**	**0**	**0**	**0**
Humidity	**14**	**2**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Durability (200 cycles)

1). A total of 8 signal points and 8 ground points were measured.
2). EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3). A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4). The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	2011-10-31	2011-11-11	2011-11-16	2011-11-29
Room Temp (Deg C)	23	22	22	22
Rel Humidity (%)	32	33	36	30
Technician	Craig Ryan	Craig Ryan	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta 200 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	11.06	0.26	0.36	0.37
St. Dev.	0.32	0.12	0.34	0.25
Min	10.61	0.11	0.01	0.03
Max	11.46	0.40	1.02	0.78
Summary Count	8	8	8	8
Total Count	8	8	8	8
	Pin Type 2: Ground			
Average	3.74	12.22	5.21	7.21
St. Dev.	0.60	8.84	3.91	2.31
Min	3.15	3.26	2.08	3.09
Max	4.80	30.48	12.01	10.22
Summary Count	8	8	8	8
Total Count	8	8	8	8

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
200 Cycles	**9**	**4**	**1**	**2**	**0**	**0**
Therm Shck	**13**	**1**	**2**	**0**	**0**	**0**
Humidity	**9**	**5**	**1**	**1**	**0**	**0**

DATA SUMMARIES Continued

LLCR Durability (300 cycles)

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms:---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

LLCR Measurement Summaries by Pin Type				
Date	2011-10-31	2011-11-11	2011-11-16	2011-11-29
Room Temp (Deg C)	23	22	22	22
Rel Humidity (%)	32	33	36	30
Technician	Craig Ryan	Craig Ryan	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta 300 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	10.89	0.36	0.31	0.29
St. Dev.	0.43	0.22	0.17	0.22
Min	10.23	0.01	0.04	0.05
Max	11.37	0.73	0.62	0.70
Summary Count	8	8	8	8
Total Count	8	8	8	8
	Pin Type 2: Ground			
Average	4.82	8.52	4.10	8.87
St. Dev.	0.97	6.73	2.57	7.20
Min	3.15	0.89	1.28	2.11
Max	5.85	19.12	9.17	26.67
Summary Count	8	8	8	8
Total Count	8	8	8	8

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
300 Cycles	**11**	**2**	**1**	**2**	**0**	**0**
Therm Shck	**13**	**3**	**0**	**0**	**0**	**0**
Humidity	**10**	**4**	**1**	**1**	**0**	**0**

DATA SUMMARIES Continued

LLCR Durability (400 cycles)

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms:---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	2011-10-31	2011-11-11	2011-11-16	2011-11-29
Room Temp (Deg C)	23	22	22	30
Rel Humidity (%)	32	33	36	22
Technician	Craig Ryan	Craig Ryan	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta 400 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	11.04	0.72	0.48	0.41
St. Dev.	0.84	0.86	0.56	0.52
Min	10.43	0.25	0.01	0.01
Max	12.94	2.80	1.74	1.67
Summary Count	8	8	8	8
Total Count	8	8	8	8
	Pin Type 2: Ground			
Average	4.50	8.08	4.23	5.78
St. Dev.	0.89	4.18	3.20	2.77
Min	3.39	1.67	0.39	2.47
Max	6.19	14.54	9.86	10.99
Summary Count	8	8	8	8
Total Count	8	8	8	8

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
400 Cycles	**10**	**3**	**3**	**0**	**0**	**0**
Therm Shck	**12**	**4**	**0**	**0**	**0**	**0**
Humidity	**11**	**4**	**1**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Durability (500 cycles)

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms:---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	2011-10-31	2011-11-11	2011-11-16	2011-11-29
Room Temp (Deg C)	23	22	22	22
Rel Humidity (%)	32	33	36	30
Technician	Craig Ryan	Craig Ryan	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta 500 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	11.16	1.28	0.57	0.42
St. Dev.	0.47	2.53	0.53	0.42
Min	10.52	0.11	0.15	0.05
Max	11.88	7.54	1.70	1.33
Summary Count	8	8	8	8
Total Count	8	8	8	8
	Pin Type 2: Ground			
Average	4.27	5.82	1.76	3.46
St. Dev.	0.74	4.80	1.48	2.06
Min	3.39	0.29	0.07	0.55
Max	5.67	13.99	4.11	6.26
Summary Count	8	8	8	8
Total Count	8	8	8	8

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
500 Cycles	**12**	**2**	**2**	**0**	**0**	**0**
Therm Shck	**16**	**0**	**0**	**0**	**0**	**0**
Humidity	**14**	**2**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Gas Tight:

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms: ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type	
Date	2011-10-20	2011-10-24
Room Temp (Deg C)	22	22
Rel Humidity (%)	32	34
Technician	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta Acid Vapor**
	Pin Type 1: Signal	
Average	11.00	1.44
St. Dev.	0.24	0.07
Min	10.54	0.00
Max	11.33	0.20
Summary Count	8	8
Total Count	8	8
	Pin Type 2: Ground	
Average	5.56	2.76
St. Dev.	1.47	1.43
Min	3.91	0.31
Max	8.92	4.37
Summary Count	8	8
Total Count	8	8

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

DATA SUMMARIES Continued

LLCR Thermal:

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type	
Date	2011-10-28	2011-11-11
Room Temp (Deg C)	22	22
Rel Humidity (%)	33	33
Technician	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta Thermal**
	Pin Type 1: Signal	
Average	10.91	0.16
St. Dev.	0.40	0.10
Min	10.58	0.01
Max	11.93	0.33
Summary Count	8	8
Total Count	8	8
	Pin Type 2: Ground	
Average	4.84	3.44
St. Dev.	1.83	1.82
Min	3.42	0.60
Max	9.41	6.05
Summary Count	8	8
Total Count	8	8

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

DATA SUMMARIES Continued

LLCR Durability:(HDBNC-J-P-GN-ST-EM1/RFB6T-H4SP3-606060-0150)

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	2012-1-18	2012-1-19	2012-1-25	2012-2-6
Room Temp (Deg C)	23	22	22	22
Rel Humidity (%)	36	35	36	35
Technician	Craig Ryan	Craig Ryan	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta 100 Cycles**	**Delta Therm Shck**	**Delta Humidity**
	Pin Type 1: Signal			
Average	11.35	0.56	0.94	1.19
St. Dev.	0.97	0.82	0.96	1.00
Min	10.39	0.00	0.17	0.19
Max	13.59	2.60	3.23	3.59
Summary Count	8	8	8	8
Total Count	8	8	8	8
	Pin Type 2: Ground			
Average	5.65	2.65	6.09	6.52
St. Dev.	1.35	1.63	4.15	4.11
Min	3.48	0.58	0.88	1.30
Max	7.67	5.10	12.68	12.83
Summary Count	8	8	8	8
Total Count	8	8	8	8

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
100 Cycles	**15**	**1**	**0**	**0**	**0**	**0**
Therm Shck	**11**	**3**	**2**	**0**	**0**	**0**
Humidity	**11**	**3**	**2**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Shock & Vibration:

1) A total of 8 signal points and 8 ground points were measured.
2) EIA-364-23, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ---------- Stable
   b. +5.1 to +10.0 mOhms: ---------- Minor
   c. +10.1 to +15.0 mOhms: ---------- Acceptable
   d. +15.1 to +50.0 mOhms: ---------- Marginal
   e. +50.1 to +2000 mOhms ---------- Unstable
   f. >+2000 mOhms: ---------- Open Failure

	LLCR Measurement Summaries by Pin Type	
Date	2011-12-27	2011-12-30
Room Temp (Deg C)	22	23
Rel Humidity (%)	32	33
Technician	Craig Ryan	Craig Ryan
mOhm values	**Actual Initial**	**Delta Shock-Vib**
	Pin Type 1: Ground	
Average	10.71	5.06
St. Dev.	1.32	1.47
Min	8.67	3.30
Max	13.24	7.56
Summary Count	8	8
Total Count	8	8
	Pin Type 2: Signal	
Average	15.63	0.11
St. Dev.	0.32	0.06
Min	15.19	0.03
Max	16.29	0.23
Summary Count	8	8
Total Count	8	8

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Shock-Vib	**12**	**4**	**0**	**0**	**0**	**0**

Nanosecond Event Detection:

Shock and Vibration Event Detection Summary	
Contacts tested	16
Test Condition	C, 100g's, 6ms, Half-Sine
Shock Events	0
Test Condition	V-B, 7.56 rms g
Vibration Events	0
Total Events	0

DATA SUMMARIES Continued

Connector Pull

HDBNC-P-C-H-ST-CA6 –PIN

	Force (lbs)
Minimum	**38.50**
Maximum	40.50
Average	39.50

HDBNC-P-C-H-ST-CA8-PIN

	Force (lbs)
Minimum	**17.50**
Maximum	18.00
Average	17.60

RFB6T-H4SP2-606060-0150

	Force (lbs)
Minimum	**34.50**
Maximum	41.50
Average	37.88

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 04/30/2011, Next Cal: 04/30/2012

Equipment #: TCT-04
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 04-1041-04
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 05/21/2011, Next Cal: 05/21/2012

Equipment #: THC-02
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SE-1000-6-6
Serial #: 31808
Accuracy: See Manual
… Last Cal: 02/16/2012, Next Cal: 02/16/2013

Equipment #: TSC-01
Description: Vertical Thermal Shock Chamber
Manufacturer: Cincinnatti Sub Zero
Model: VTS-3-6-6-SC/AC
Serial #: 10-VT14993
Accuracy: See Manual
… Last Cal: 05/18/2011, Next Cal: 05/18/2012

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy
… Last Cal: 11/30/2011, Next Cal: 11/30/2012

EQUIPMENT AND CALIBRATION SCHEDULES Continued

Equipment #: SVC-01
Description: Shock & Vibration Table
Manufacturer: Data Physics
Model: LE-DSA-10-20K
Serial #: 10037
Accuracy: See Manual
… Last Cal: 11/31/2010, Next Cal: 11/31/2011

Equipment #: ACLM-01
Description: Accelerometer
Manufacturer: PCB Piezotronics
Model: 352C03
Serial #: 115819
Accuracy: See Manual
… Last Cal: 07/09/2011, Next Cal: 07/09/2012

Equipment #: ED-03
Description: Event Detector
Manufacturer: Analysis Tech
Model: 32EHD
Serial #: 1100604
Accuracy: See Manual
… Last Cal: 06/04/2011, Next Cal: 06/04/2012