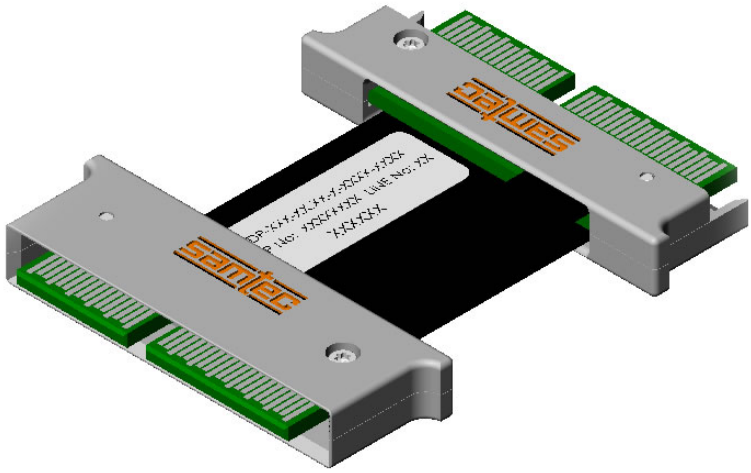
Project Number: NA	Tracking Code: TC0430--0495		
Requested by: John Reid	Date: 7/23/2004	Product Rev: 4	
Part #: EEDP-016-06.00-DV1-DV2-2	Lot #: 7/22/2004	Tech: Troy Cook	Eng: John Reid
Part description: Edge Card Twin-ax Differential Pair Cable Assy			Qty to test: 65
Test Start: 8/20/2004	Test Completed: 2/11/2005		



DVT Report

PART DESCRIPTION

EEDP-016-06.00-DV1-DV2-2

Mated with HSEC8-125-01-S-DV-A

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

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

APPLICABLE DOCUMENTS

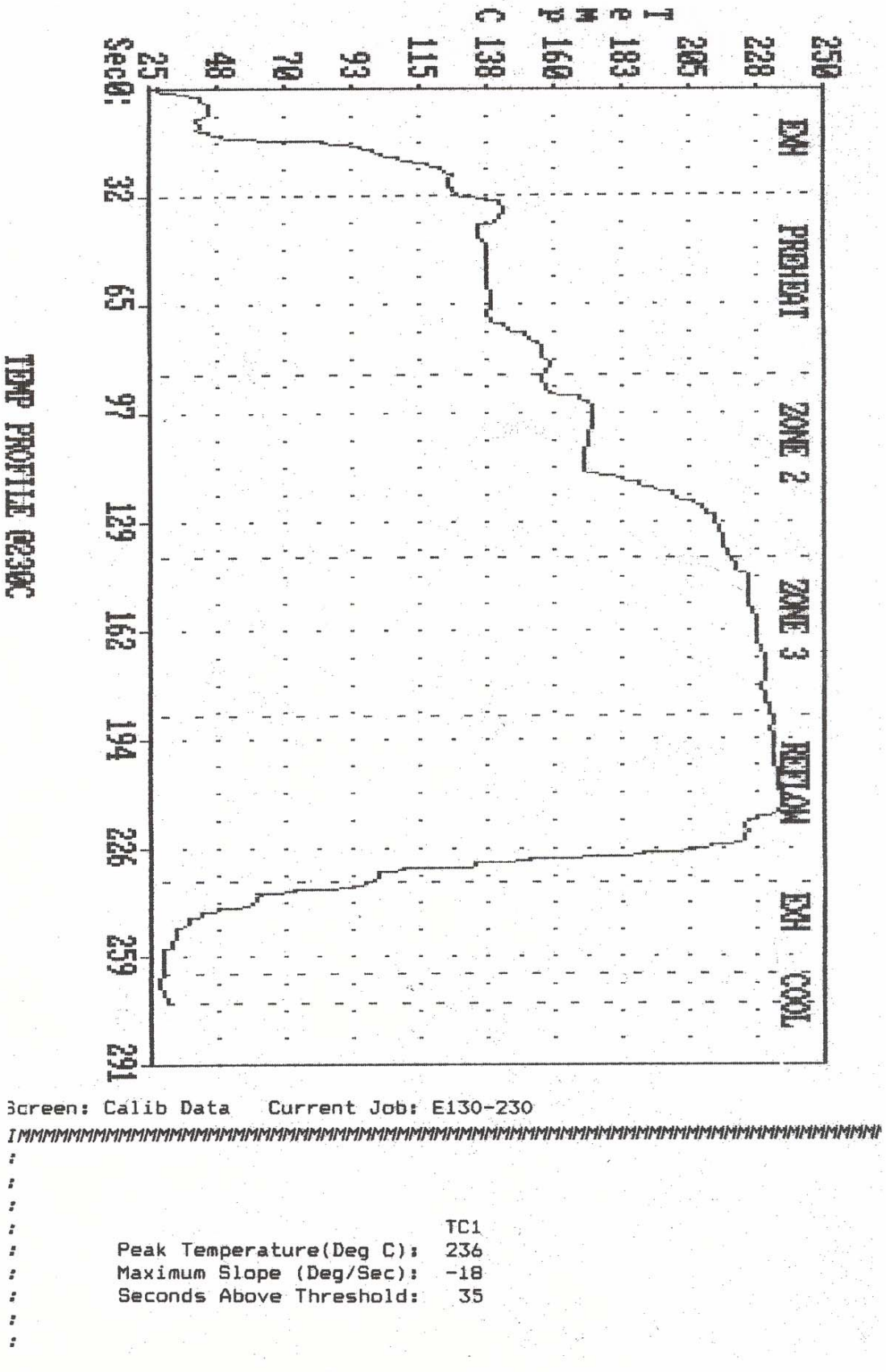
Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) After soldering, the parts to be used for LLCR and DWV/IR testing were cleaned according to 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) The ultrasonic procedure can be used with either aqueous or non-aqueous soldering components and follows:
    a. Sample test boards are to be ultrasonically cleaned after test lead attachment, preparation and/or soldering.
    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
    c. Sample test boards are removed and placed into the Branson 3510 cleaner containing deionized water with the following conditions:
        i. Temperature: --------55° C +/- 5° C
        ii. Frequency:----------40 KHz
        iii. Immersion Time: ---5 to 10 Minutes
    d. 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.
    e. Upon removal, the sample boards are rinsed for ½ to 1 minute at room temperature with free flowing deionized water.
    f. 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.
    g. Sample test boards are then allowed to set and recover to room ambient condition prior to testing.
7) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
8) Any additional preparation will be noted in the individual test sequences.
9) Solder Information: Sn63Pb37
10) Re-Flow Time/Temp: See accompanying profile.
11) Internal Test PCBs used: 100166-TST-XX

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

OVEN PROFILE (Soldering Parts to Test Boards)



FLOWCHARTS

TEST STEP	GROUP 1 6 Adjacent Conductors	GROUP 2 Ground system
01	CCC	CCC

Tabulate calculated current at RT, 55° C, 65° C and 70° C after derating 20% and based on 80° C

CCC, Temp rise = EIA-364-70

TEST STEP	GROUP 1A Signal to Signal	GROUP 1B Signal to GND
01	IR	IR
02	Data Review	Data Review
03	Thermal Aging	Thermal Aging
04	IR	IR
05	Data Review	Data Review
06	Humidity	Humidity
07	IR	IR

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C; Time Condition 'B' (250 hours)

Humidity =EIA-364-31, Test Condition B (240 Hours) and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH) delete steps 7a and 7b

IR = EIA-364-21

TEST STEP	GROUP 1A Signal-to-Signal	GROUP 1B Signal-to-Signal	GROUP 1C Signal-to-Signal
01	DWV/Working Voltage	Thermal Aging	Humidity
02		DWV/Working Voltage	DWV/Working Voltage

TEST STEP	GROUP 1A Signal-to-GNDs	GROUP 1B Signal-to-GNDs	GROUP 1C Signal-to-GNDs
01	DWV/Working Voltage	Thermal Aging	Humidity
02		DWV/Working Voltage	DWV/Working Voltage

Thermal Aging = EIA-364-17, Test Condition 4, 105 deg C; Time Condition 'B' (250 hours)

Humidity =EIA-364-31, Test Condition B (240 Hours) and Method III (+25 ° C to +65 ° C @ 90%RH to 98% RH) delete steps 7a and 7b

DWV = EIA-364-20

FLOWCHARTS Continued

TEST STEP	GROUP 1 200 Points 500 Cycles
01	LLCR-1
02	Data Review
03	100 Cycles
04	LLCR-2
05	Data Review
06	150 Cycles
07	LLCR-3
08	Data Review
09	250 Cycles
10	LLCR-4

LLCR = EIA-364-23,
LLCR
use Keithley 580 in the dry circuit mode, 10 mA Max

TEST STEP	GROUP 1A GND 0°	GROUP 1B GND 90°
01	Pull test, Continuity	Pull test, Continuity

Secure the cable in the center
Monitor continuity (4-Wire) and pull record forces when continuity fails

TEST STEP	GROUP 1A 8 Oz Load ±90° Bend	GROUP 1B 4 Oz Load ±35° Bend
01	Resistance	Resistance
02	1000 Cycles	5000 Cycles
03	Resistance	Data Review
04	Data Review	Resistance
05	2500 Cycles	10000 Cycles
06	Resistance	Data Review
07	Data Review	Resistance
08	5000 Cycles	15000 Cycles
09	Resistance	Data Review

Flex mode +/- 90 Degree, 8oz load
Pendulum mode, +/- 35 Degree, 4 oz load

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL:

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

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) Connectors are mated and pre-conditioned at ambient.

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. 55^{o} C
    c. 65^{o} C
    d. 70^{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.

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 and 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 5000 megohms.

ATTRIBUTE DEFINITIONS Continued

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. Rate of Application 500 V/Sec
        iii. 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).

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 DEFINITIONS Continued

SUPPLEMENTAL TESTS

CONNECTOR PULL:

1) Secure cable near center and pull on connector
    a. At 90°, right angle to cable
    b. At 0°, in-line with cable

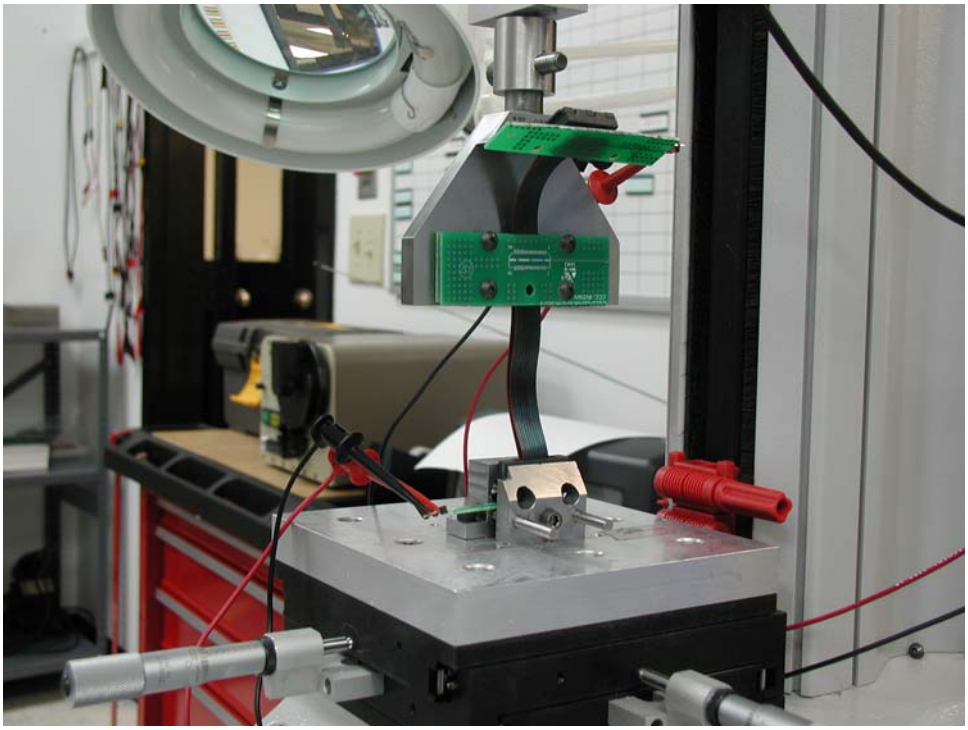


Fig. 1

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

CABLE DURABILITY:

1) Oscillate and monitor electrical continuity for open circuit indication.
   a. ± 35° Pendulum Mode.

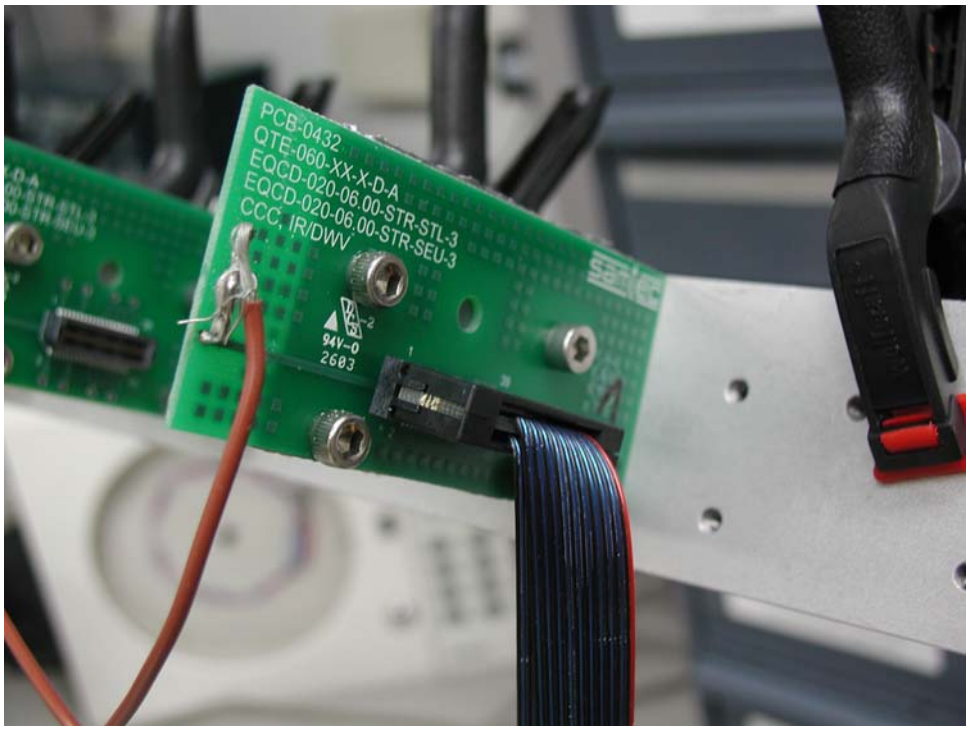


Fig. 2
(Typical set-up, actual part not depicted.)

b. ± 90° Bend Mode.

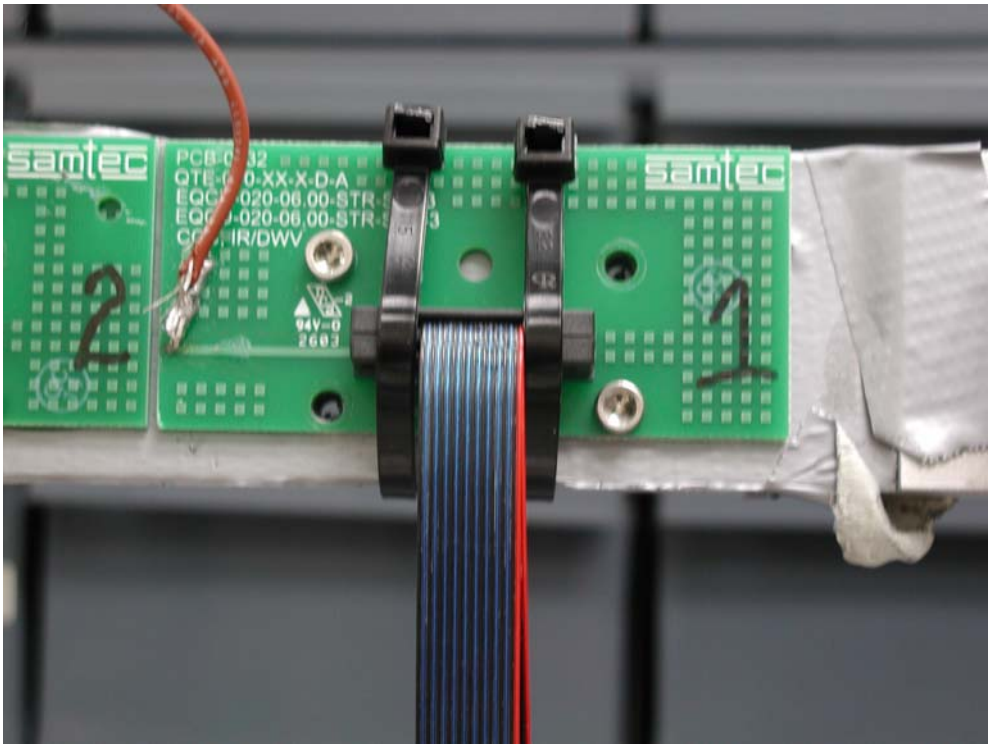


Fig. 3
(Typical set-up, actual part not depicted.)

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

RESULTS

Temperature Rise, CCC, at 20% de-rating measured at cable center

- **At 70°C, relative to 80°C ----------0.9 A with 6 adjacent signal lines powered**
- **At 70°C, relative to 80°C ----------8.7 A with GND system powered**

Insulation Resistance minimums, IR, mated condition

- **Initial**
  - **Signal to Signal ----------6,000 Meg Ω ---------- Pass**
  - **Signal to Ground ----------8,000 Meg Ω ---------- Pass**
- **Thermal**
  - **Signal to Signal ---------- 25,000 Meg Ω**
  - **Signal to Ground ----------9,000 Meg Ω**
- **Humidity**
  - **Signal to Signal ---------- 25,000 Meg Ω**
  - **Signal to Ground ---------- 50,000 Meg Ω**

Dielectric Withstanding Voltage minimums, DWV, mated condition

- **Initial**
  - **Breakdown**
    - **Signal to Signal----------900 VAC**
    - **Signal to Ground ----------820 VAC**
  - **DWV**
    - **Signal to Signal----------675 VAC**
    - **Signal to Ground ----------615 VAC**
  - **Working voltage**
    - **Signal to Signal----------225 VAC**
    - **Signal to Ground ----------205 VAC**
- **Thermal**
  - **Breakdown**
    - **Signal to Signal----------1,100 VAC**
    - **Signal to Ground ----------900 VAC**
  - **DWV**
    - **Signal to Signal----------825 VAC**
    - **Signal to Ground ----------675 VAC**
  - **Working voltage**
    - **Signal to Signal----------275 VAC**
    - **Signal to Ground ----------225 VAC**
- **Humidity**
  - **Breakdown**
    - **Signal to Signal----------1,140 VAC**
    - **Signal to Ground ----------800 VAC**
  - **DWV**
    - **Signal to Signal----------855 VAC**
    - **Signal to Ground ----------600 VAC**
  - **Working voltage**
    - **Signal to Signal----------285 VAC**
    - **Signal to Ground ----------200 VAC**

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

RESULTS Continued

LLCR Durability (200 LLCR test points)

- **Initial (two contacts in series separated by a 6.00 inch co-ax cable)..... 97.7 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +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**
- **Durability, 150 Cycles**
  - **<= +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**
  -
- **Durability, 250 Cycles**
  - **<= +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**

SUPPLEMENTAL TESTING

Connector/Cable Pull, Monitor GND for continuity

- **0° ---------- 161.60 lbs min**
- **90° ---------- 84.53 lbs min**

Cable Bend, Monitor Signal lines for continuity at 2700 cycles/hour

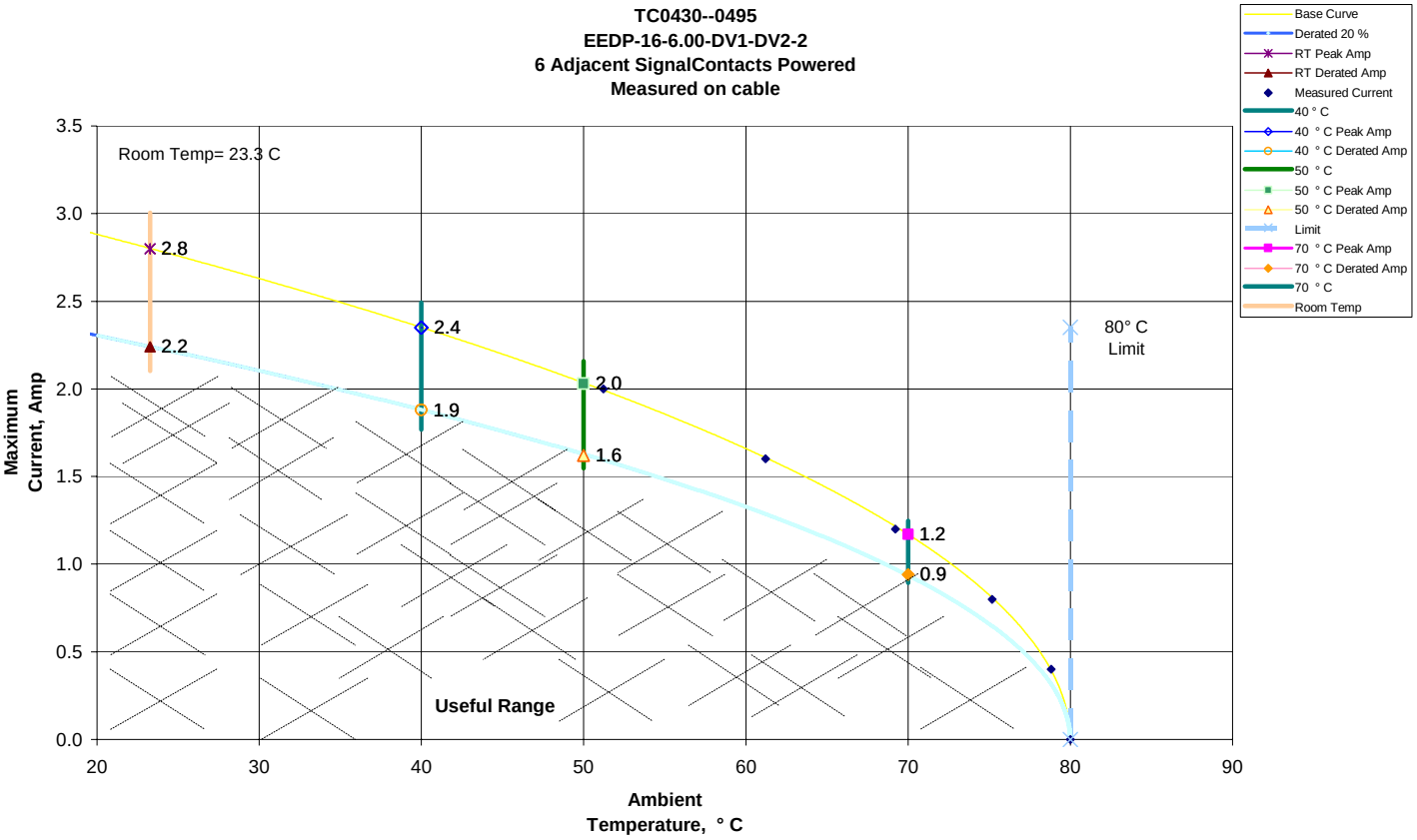
- **±35° Pendulum Mode with 8 oz. weight ---------- No Electrical Failures up to 70,000 Cycles**
- **±90° Bend Mode with 8 oz. weight ---------- No Electrical Failures up to 1,000 Cycles**

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA SUMMARIES

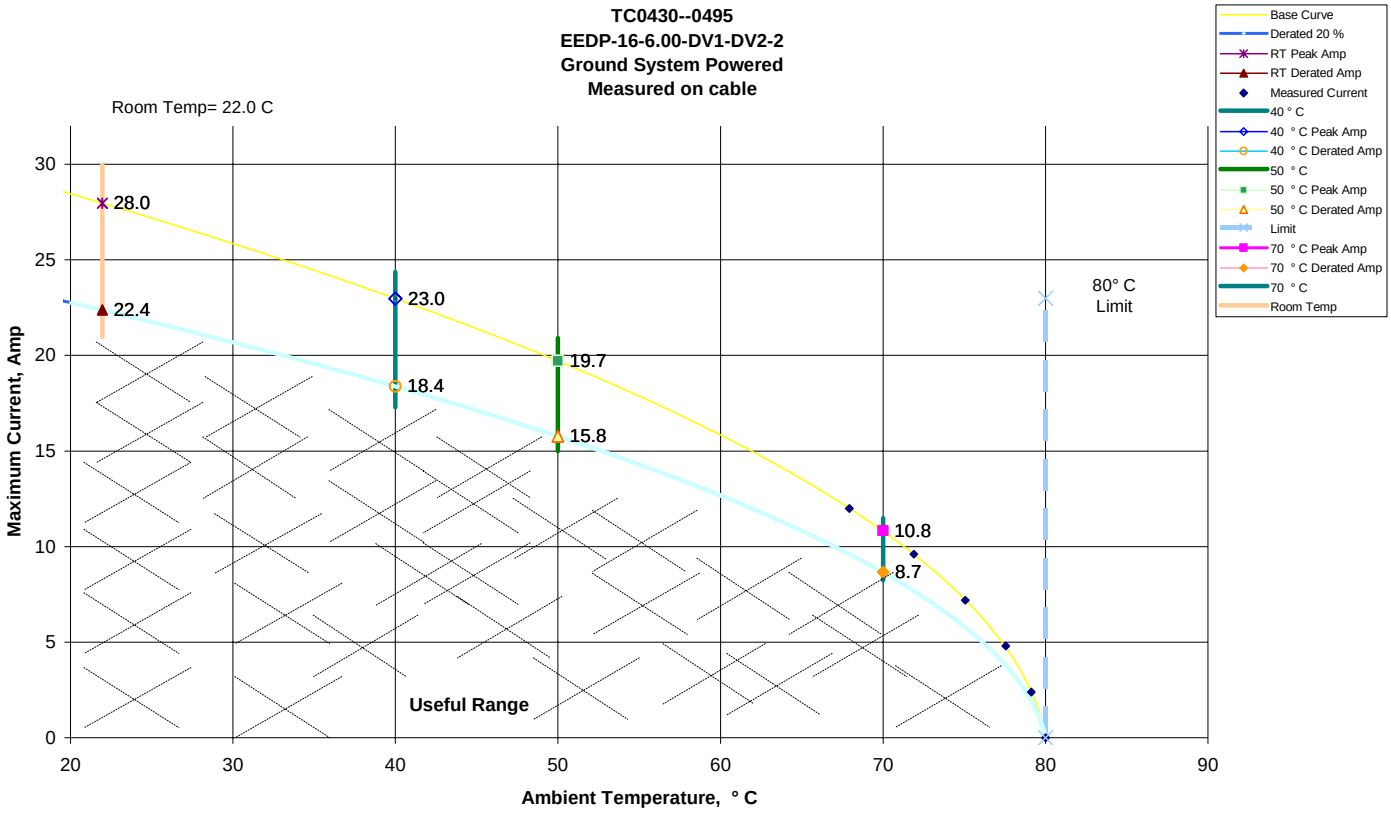
TEMPERATURE RISE (Current Carrying Capacity, CCC):

1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
2) The thermocouples were placed at a location to sense the maximum temperature generated during testing.
3) Temperature readings recorded are those for which three successive readings, 15 minutes apart, differ less than 1° C (computer controlled data acquisition).
4) Adjacent contacts were powered:
    a. Six adjacent signal contacts powered
    b. Ground System Powered



Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA SUMMARIES Continued



DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

	Sig/Sig megOhms Resistance			Sig/GND megOhms Resistance		
	Electrification Time *Two (2) minutes*			Electrification Time *Two (2) minutes*		
	Initial	Thermal	Humidity	Initial	Thermal	Humidity
	Mated	Mated	Mated	Mated	Unmated	Mated
	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance	Insulation Resistance
Average	15500	25000	37500	9000	12000	50000
Min	6000	25000	25000	8000	9000	50000
Max	25000	25000	50000	10000	15000	50000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

	Sig/Sig VAC								
	Voltage Rate *500 VAC Per Sec.*								
	Test Voltage *Until Breakdown Occurs*								
	Initial Mated			Thermal Mated			Humidity Mated		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	950	713	238	1100	825	275	1150	863	288
Min	900	675	225	1100	825	275	1140	855	285
Max	1000	750	250	1100	825	275	1160	870	290

	Sig/GND VAC								
	Voltage Rate *500 VAC Per Sec.*								
	Test Voltage *Until Breakdown Occurs*								
	Initial Mated			Thermal Mated			Humidity Mated		
	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage	Breakdown Voltage	DWV	Working Voltage
Average	900	675	225	930	698	233	820	615	205
Min	820	615	205	900	675	225	800	600	200
Max	980	735	245	960	720	240	840	630	210

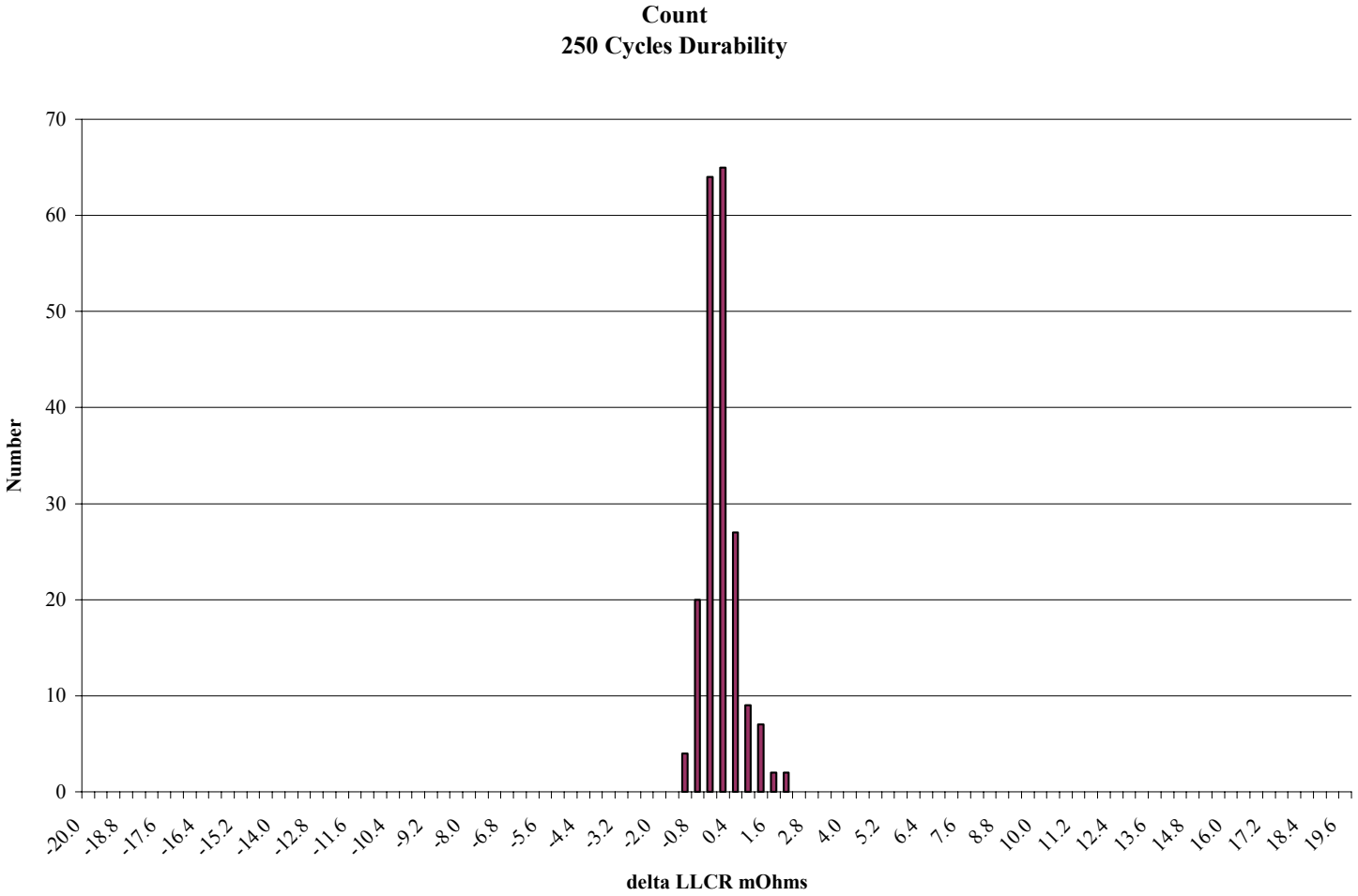
Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA SUMMARIES Continued

LLCR:

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

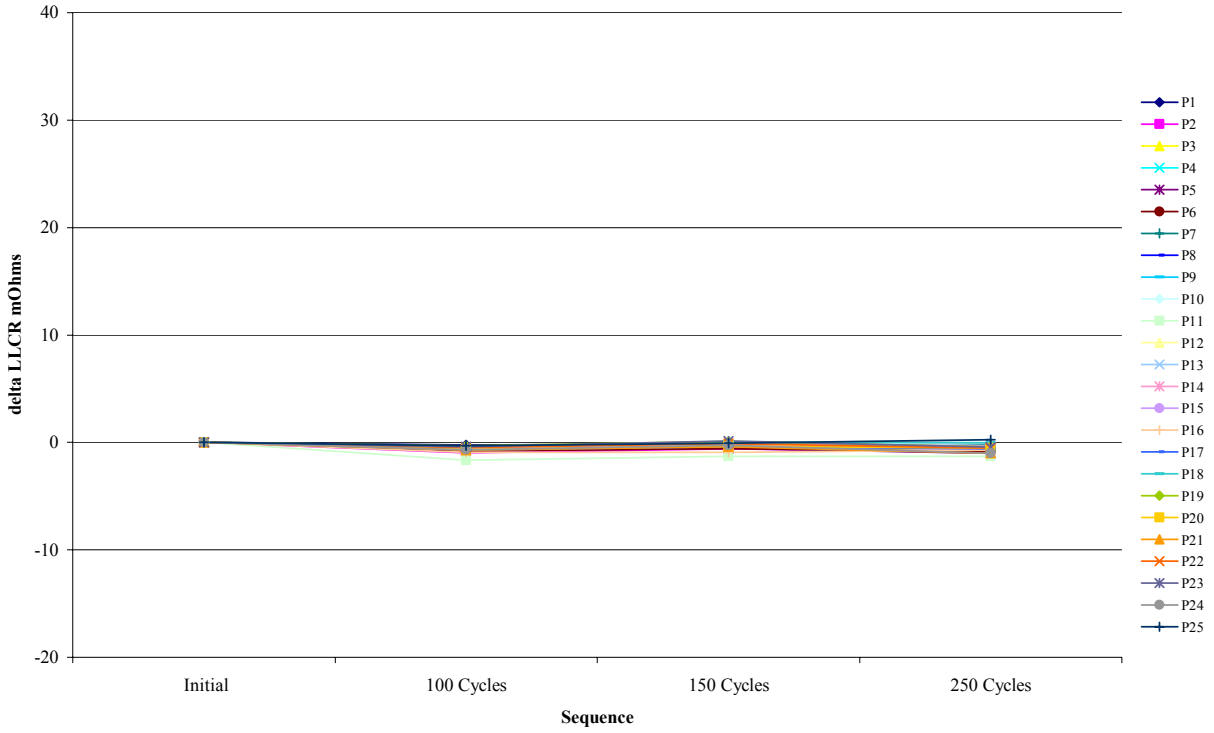
	* Two contacts in series separated by a 6.00 inch co-ax cable			
mOhm values	**Actual Initial ***	**Delta 100 Cycles**	**Delta 150 Cycles**	**Delta 250 Cycles**
Average	88.8	-0.2	-0.2	-0.3
St. Dev.	3.2	0.5	0.5	0.5
Min	82.9	-1.6	-1.4	-1.3
Max	97.7	1.7	1.0	1.8
Count	200	200	200	200



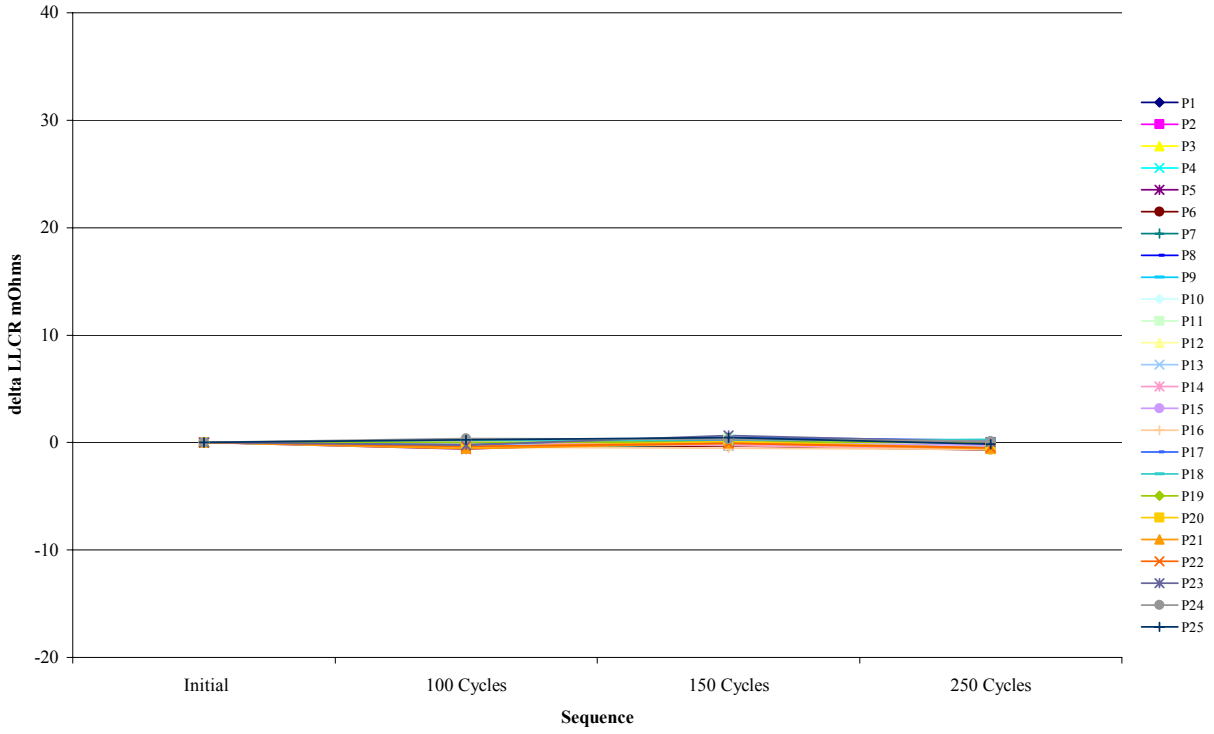
Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA SUMMARIES Continued

Cable Assembly #1



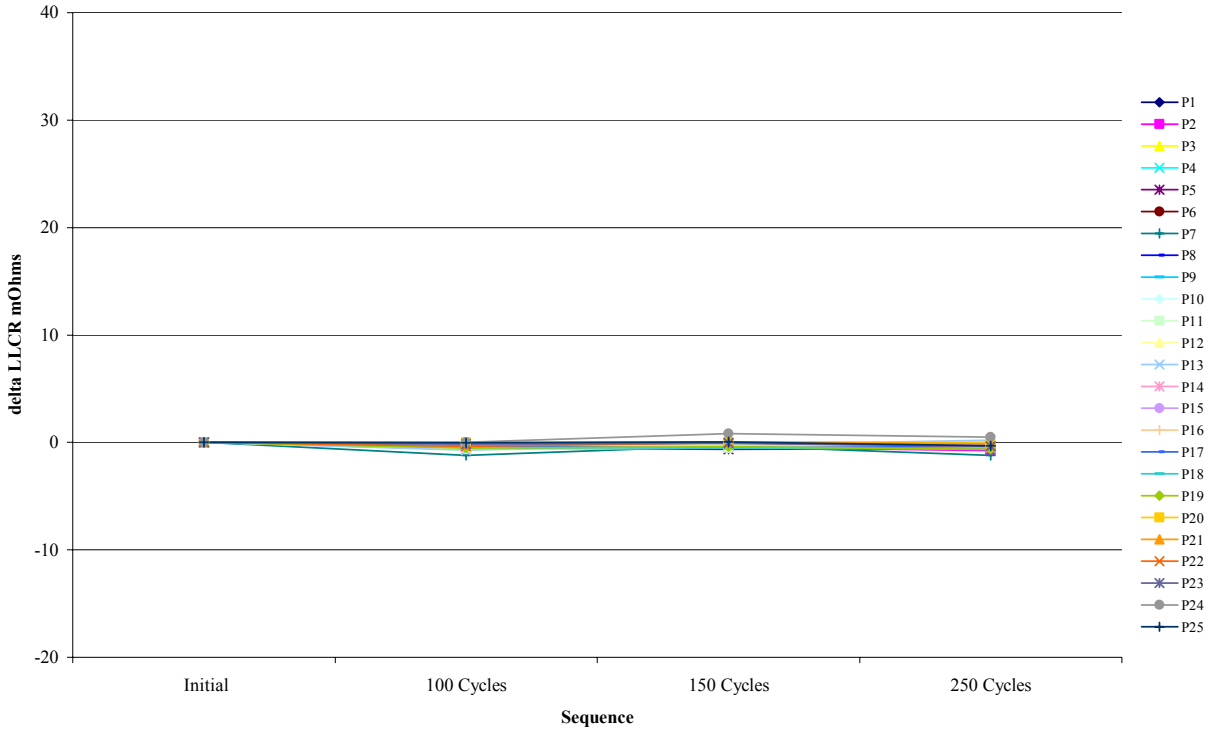
Cable Assembly #2



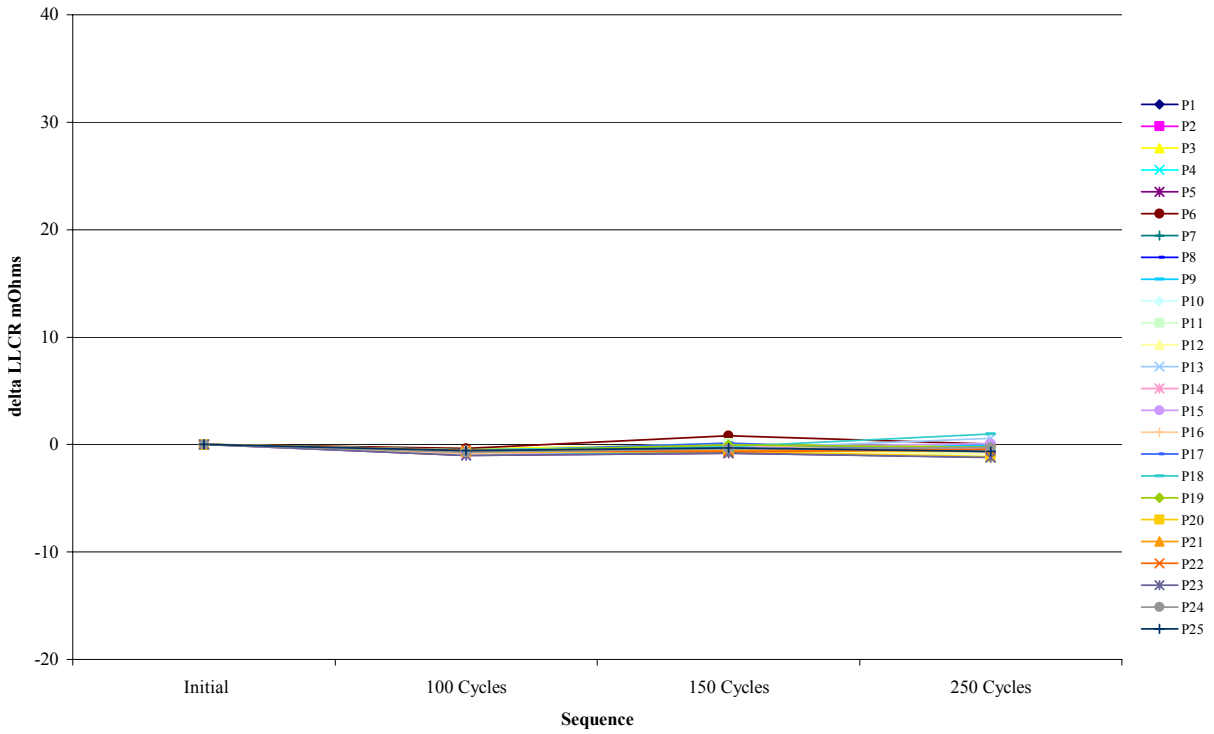
Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA SUMMARIES Continued

Cable Assembly #3



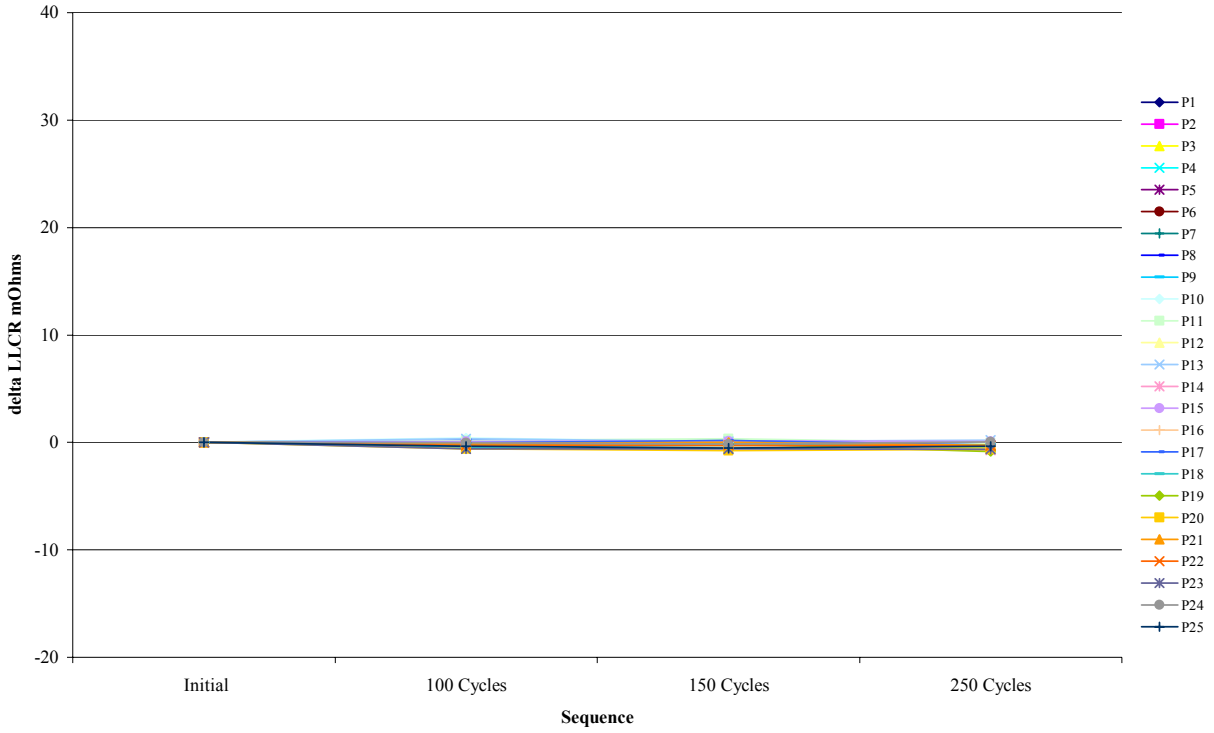
Cable Assembly #4



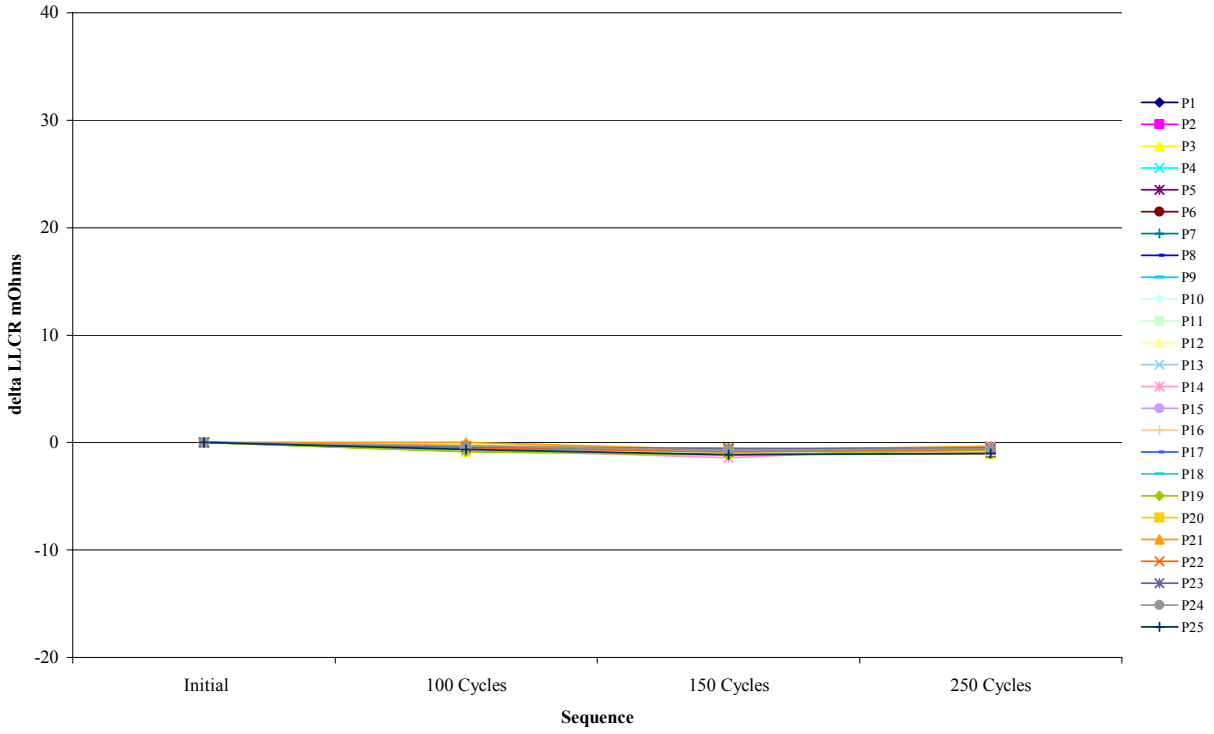
Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA SUMMARIES Continued

Cable Assembly #5



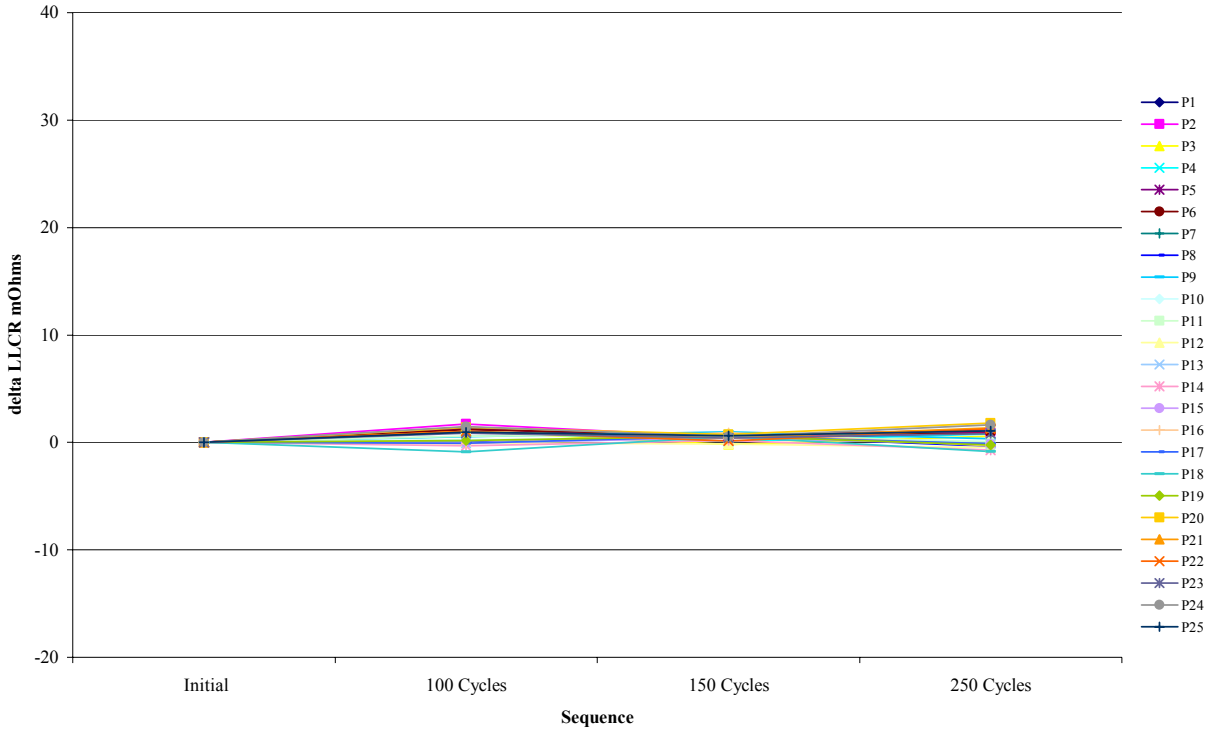
Cable Assembly #6



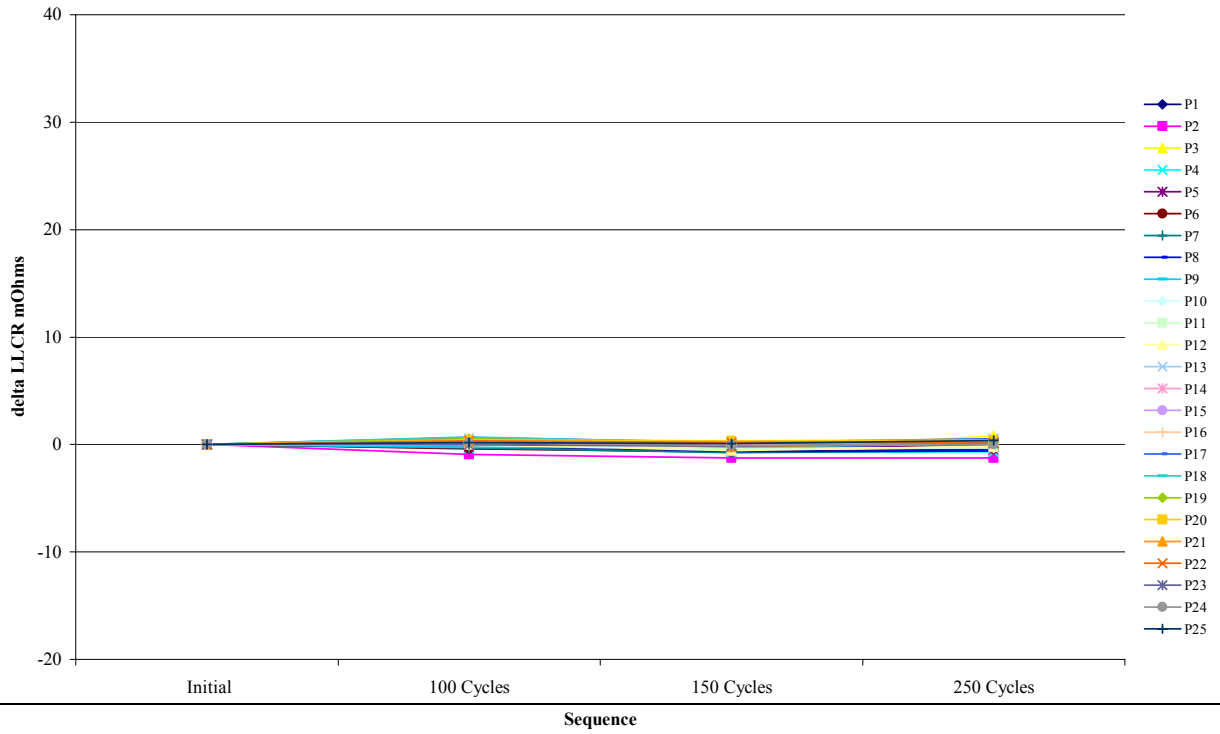
Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA SUMMARIES Continued

Cable Assembly #7



Cable Assembly #8



DATA SUMMARIES Continued

SUPPLEMENTAL TESTS

Connector/Cable Pull, Monitor GND for continuity:

	GND... 0 Deg.	***GND... 90 Deg.***
	Force (Lbs)	Force (Lbs)
Minimum	161.60	84.53
Maximum	*176.86*	*131.32*
Average	***168.1***	***108.0***

Cable Flexing, Monitor Signal Lines for continuity:

- **No Resistance measurements taken on Pendulum Mode**
- **Bend Mode Summary below:**

	Uses an 8 oz. Load. Cycling at 2700 Cycles/Hour					
Cable	**+/- 90 Degree Bend Mode Resistance Change, Ohms, 32 lines in series**					
	Initial	**1526 Cycles**	**2429 Cycles**	**2438 Cycles**	**2601 Cycles**	**2844 Cycles**
# 1 Failed at 2438 Cycles	0.0000	-0.0300	-0.0400	NA	NA	NA
# 2 Failed at 2429 Cycles	0.0000	-0.0400	NA	NA	NA	NA
# 3 Failed at 2601 Cycles	0.0000	-0.0500	-0.0600	-0.0600	NA	NA
# 4 Failed at 1526 Cycles	0.0000	NA	NA	NA	NA	NA
# 5 Failed at 2844 Cycles	0.0000	-0.0500	-0.0600	-0.0500	-0.0500	NA
# 6 Failed at 1144 Cycles	0.0000	NA	NA	NA	NA	NA
# 7 Failed at 1755 Cycles	0.0000	0.0000	NA	NA	NA	NA
# 8 Failed at 2301 Cycles	0.0000	-0.0200	-0.0100	NA	NA	NA
# 9 Failed at 2406 Cycles	0.0000	-0.0100	-0.0200	-0.0100	NA	NA
# 10 Failed at 2301 Cycles	0.0000	0.1000	-0.0200	NA	NA	NA

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA

INSULATION RESISTANCE (IR), Signal to Signal:

Test Date:	8/20/2004
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	56%
Equipment ID:	HPM-01

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

	Sig/Sig megOhms Resistance		
	Electrification Time ***Two (2) minutes***		
	Initial	**Thermal**	**Humidity**
	Mated	**Mated**	**Mated**
Sample #	**Insulation Resistance**	**Insulation Resistance**	**Insulation Resistance**
1	6000	25000	50000
2	25000	25000	25000

INSULATION RESISTANCE (IR), Signal to Ground:

Test Date:	8/20/2004
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	56%
Equipment ID:	HPM-01

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

	Sig/GND megOhms Resistance		
	Electrification Time ***Two (2) minutes***		
	Initial	**Thermal**	**Humidity**
	Mated	**Mated**	**Mated**
Sample #	**Insulation Resistance**	**Insulation Resistance**	**Insulation Resistance**
1	10000	15000	50000
2	8000	9000	50000

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal to Signal:

Test Date:	8/20/2004
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	56%
Equipment ID:	HPM-01

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

	Sig/Sig VAC								
	Voltage Rate ***500 VAC Per Sec.***								
	Test Voltage ***Until Breakdown Occurs***								
	Initial Mated			**Thermal Mated**			**Humidity Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**	**Breakdown Voltage**	**DWV**	**Working Voltage**	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	900	675	225	1100	825	275	1160	870	290
2	1000	750	250	1100	825	275	1140	855	285

DIELECTRIC WITHSTANDING VOLTAGE (DWV) Signal to Ground:

Test Date:	8/20/2004
Operator:	Troy Cook
Temperature (C):	23
Humidity (RH):	56%
Equipment ID:	HPM-01

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

	Sig/GND VAC								
	Voltage Rate ***500 VAC Per Sec.***								
	Test Voltage ***Until Breakdown Occurs***								
	Initial Mated			**Thermal Mated**			**Humidity Mated**		
Sample #	**Breakdown Voltage**	**DWV**	**Working Voltage**	**Breakdown Voltage**	**DWV**	**Working Voltage**	**Breakdown Voltage**	**DWV**	**Working Voltage**
1	820	615	205	900	675	225	840	630	210
2	980	735	245	960	720	240	800	600	200

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA Continued

LLCR:

Date	Aug. 20 2004	Aug. 23 2004	Aug. 23 2004	Aug. 26 2004
Room Temp C	24	25	25	24
RH	46%	43%	51%	51%
Name	Troy Cook	Troy Cook	Troy Cook	Troy Cook
	*** Two contacts in series separated by a 6.00 inch co-ax cable**			

mOhm values		Actual	Delta	Delta	Delta
Board	Position	Initial *	100 Cycles	150 Cycles	250 Cycles
1	P1	89.9	-0.2	-0.1	-0.3
1	P2	91.1	-1.0	-0.6	-0.9
1	P3	90.2	-0.8	-0.4	-0.7
1	P4	91.5	-0.5	-0.3	-0.5
1	P5	87.6	-0.8	-0.5	-1.0
1	P6	86.6	-0.8	-0.6	-0.9
1	P7	90.3	-0.6	-0.2	-0.2
1	P8	92.0	-0.6	-0.4	-0.4
1	P9	90.3	-0.6	-0.3	-0.6
1	P10	92.2	-0.6	0.1	-0.3
1	P11	89.4	-1.6	-1.3	-1.3
1	P12	87.3	-0.6	-0.2	-0.7
1	P13	88.5	-0.5	-0.3	-0.7
1	P14	87.5	-0.7	-0.3	-0.7
1	P15	88.6	-0.5	-0.1	-0.3
1	P16	87.8	-0.9	-0.9	-0.7
1	P17	88.3	-0.7	-0.4	-0.6
1	P18	90.4	-0.4	0.0	0.0
1	P19	89.1	-0.3	0.1	-0.4
1	P20	88.6	-0.6	-0.4	-0.5
1	P21	87.6	-0.7	-0.4	-1.0
1	P22	89.2	-0.5	-0.1	-0.5
1	P23	87.5	-0.4	0.1	-0.4
1	P24	89.6	-0.7	-0.3	-1.0
1	P25	87.6	-0.3	-0.1	0.2
2	P1	89.3	-0.4	-0.1	-0.4
2	P2	89.8	-0.5	-0.2	-0.6
2	P3	88.4	-0.4	-0.2	-0.4
2	P4	90.2	-0.2	-0.3	-0.4
2	P5	87.8	-0.6	0.2	-0.3
2	P6	85.6	-0.5	-0.3	-0.7
2	P7	89.7	-0.2	0.0	-0.3
2	P8	90.8	-0.5	0.3	-0.1
2	P9	89.6	-0.5	-0.2	-0.5
2	P10	91.3	-0.5	0.0	-0.3

2	P11	88.0	-0.3	0.5	-0.4
2	P12	86.4	-0.1	-0.2	-0.7
2	P13	88.4	-0.2	-0.2	-0.4
2	P14	86.8	0.0	-0.3	-0.6
2	P15	88.3	-0.4	0.0	-0.2
2	P16	87.5	-0.4	-0.5	-0.6
2	P17	87.6	-0.2	0.5	0.2
2	P18	89.7	0.2	0.1	0.3
2	P19	87.7	0.0	0.1	0.0
2	P20	87.7	-0.4	0.1	-0.5
2	P21	86.7	-0.6	-0.1	-0.6
2	P22	88.1	-0.4	-0.1	-0.5
2	P23	86.7	-0.2	0.6	0.0
2	P24	87.9	0.4	0.3	0.1
2	P25	86.2	0.3	0.4	-0.1
3	P1	86.1	-0.4	-0.4	-0.3
3	P2	86.6	-0.6	-0.4	-0.8
3	P3	85.9	-0.5	0.0	-0.4
3	P4	87.3	-0.5	-0.3	-0.5
3	P5	84.9	-0.5	-0.6	-0.6
3	P6	83.6	-0.3	-0.2	-0.5
3	P7	88.3	-1.2	-0.3	-1.2
3	P8	88.0	-0.3	-0.1	-0.1
3	P9	87.2	-0.4	-0.1	-0.3
3	P10	89.1	-0.6	-0.5	-0.5
3	P11	86.4	-0.1	-0.5	-0.4
3	P12	84.9	-0.6	-0.2	-0.3
3	P13	86.7	-0.7	-0.2	0.2
3	P14	85.3	-0.4	0.0	-0.5
3	P15	86.5	-0.3	0.0	-0.2
3	P16	85.6	-0.4	-0.3	-0.4
3	P17	86.2	-0.3	-0.5	-0.4
3	P18	88.3	-0.5	-0.5	-0.6
3	P19	86.4	-0.5	-0.4	-0.6
3	P20	85.0	0.0	0.1	0.0
3	P21	83.8	-0.1	0.0	-0.1
3	P22	85.7	-0.3	0.0	-0.3
3	P23	84.2	-0.1	-0.1	-0.4
3	P24	86.7	0.0	0.8	0.5
3	P25	85.1	0.0	0.0	-0.3
4	P1	92.0	-0.7	-0.3	-0.6
4	P2	92.7	-0.7	-0.3	-0.2
4	P3	91.1	-0.4	0.0	-0.2
4	P4	93.9	-0.6	-0.7	-0.8
4	P5	90.0	-1.0	-0.8	-1.2
4	P6	88.1	-0.4	0.8	0.1
4	P7	92.0	-0.7	-0.6	-0.2
4	P8	93.2	-0.7	0.0	-0.8
4	P9	91.9	-0.9	-0.7	0.0
4	P10	93.8	-0.8	-0.4	-0.7

4	P11	90.3	-0.6	0.2	-1.1
4	P12	88.9	-0.5	-0.6	-0.9
4	P13	90.5	-0.6	-0.4	0.6
4	P14	89.0	-0.9	-0.5	-0.4
4	P15	91.2	-0.6	-0.2	0.1
4	P16	89.5	-0.9	0.0	-0.6
4	P17	90.1	-0.6	0.1	-0.7
4	P18	91.3	-0.5	-0.2	1.0
4	P19	90.2	-0.6	0.0	-0.3
4	P20	91.1	-0.7	-0.6	-1.1
4	P21	89.3	-0.6	-0.5	-0.6
4	P22	90.9	-0.5	-0.7	-0.4
4	P23	90.2	-1.0	-0.8	-1.2
4	P24	91.1	-0.7	-0.4	-0.3
4	P25	89.8	-0.5	-0.3	-0.6
5	P1	87.1	0.0	0.2	0.1
5	P2	87.8	-0.1	-0.3	-0.3
5	P3	87.3	-0.1	-0.2	-0.5
5	P4	88.9	-0.4	-0.3	-0.4
5	P5	85.8	0.0	-0.2	-0.3
5	P6	84.3	0.1	0.0	-0.3
5	P7	85.7	-0.1	0.2	-0.2
5	P8	86.9	0.3	0.1	-0.3
5	P9	85.9	0.2	0.0	-0.2
5	P10	88.3	0.4	0.1	-0.2
5	P11	84.7	0.2	0.3	0.0
5	P12	84.2	-0.6	-0.5	-0.2
5	P13	85.3	0.3	0.1	0.2
5	P14	84.8	-0.3	-0.1	-0.7
5	P15	85.5	0.1	0.1	0.1
5	P16	84.6	-0.3	-0.3	-0.3
5	P17	84.8	0.0	0.2	-0.2
5	P18	85.9	-0.4	-0.2	-0.2
5	P19	85.7	-0.1	-0.1	-0.8
5	P20	86.9	-0.6	-0.8	-0.7
5	P21	84.8	-0.1	0.0	-0.3
5	P22	86.7	-0.3	-0.3	-0.3
5	P23	86.1	-0.6	-0.6	-0.6
5	P24	87.6	0.0	-0.1	0.1
5	P25	86.2	-0.4	-0.5	-0.3
6	P1	93.0	-0.7	-1.0	-0.9
6	P2	93.7	-0.5	-0.8	-0.8
6	P3	92.8	-0.9	-1.0	-1.1
6	P4	94.4	-0.6	-0.9	-0.5
6	P5	90.2	-0.4	-0.6	-0.9
6	P6	89.0	-0.7	-1.0	-1.0
6	P7	92.7	-0.8	-1.0	-0.8
6	P8	93.7	-0.6	-0.7	-0.8
6	P9	92.6	-0.5	-0.7	-0.6
6	P10	94.8	-0.7	-1.0	-0.8

6	P11	90.2	-0.7	-0.9	-0.9
6	P12	88.6	-0.1	-0.6	-0.7
6	P13	90.3	-0.7	-0.7	-0.8
6	P14	89.7	-0.6	-1.4	-0.3
6	P15	91.1	-0.4	-0.5	-0.8
6	P16	89.6	-0.4	-0.7	-0.9
6	P17	90.5	-0.5	-0.6	-0.5
6	P18	91.5	-0.5	-0.7	-0.6
6	P19	91.5	-0.8	-1.2	-0.7
6	P20	90.5	-0.3	-0.6	-0.6
6	P21	89.1	0.0	-0.7	-0.4
6	P22	91.2	-0.5	-0.9	-0.7
6	P23	89.6	-0.4	-0.6	-0.5
6	P24	91.5	-0.3	-0.7	-0.6
6	P25	90.5	-0.6	-1.1	-1.0
7	P1	85.1	1.4	0.1	0.9
7	P2	85.8	1.7	0.5	1.0
7	P3	85.0	1.0	-0.2	0.6
7	P4	87.2	1.0	0.1	0.8
7	P5	84.2	1.2	0.6	1.2
7	P6	82.9	1.2	0.7	0.9
7	P7	86.2	0.0	0.5	-0.1
7	P8	86.2	0.0	0.6	-0.4
7	P9	85.4	0.5	1.0	0.4
7	P10	87.5	0.3	0.4	0.1
7	P11	84.8	0.6	0.7	0.1
7	P12	83.7	0.0	-0.2	-0.5
7	P13	85.0	-0.1	0.5	-0.1
7	P14	84.5	-0.3	0.2	-0.7
7	P15	85.4	0.0	0.4	-0.2
7	P16	84.0	-0.1	0.9	-0.3
7	P17	84.3	-0.1	0.6	-0.1
7	P18	85.9	-0.9	0.5	-0.8
7	P19	84.2	0.2	0.6	-0.2
7	P20	84.8	1.4	0.7	1.8
7	P21	83.4	1.0	0.4	1.4
7	P22	84.9	1.1	0.1	1.3
7	P23	83.7	0.9	0.4	0.8
7	P24	84.9	1.5	0.5	1.7
7	P25	83.9	1.0	0.6	1.1
8	P1	95.4	-0.3	-0.6	-0.6
8	P2	96.7	-0.9	-1.2	-1.2
8	P3	94.8	0.4	-0.5	0.8
8	P4	97.7	-0.3	-0.7	-0.7
8	P5	92.7	0.1	-0.3	-0.1
8	P6	91.0	-0.4	-0.7	-0.5
8	P7	95.4	-0.3	-0.8	-0.6
8	P8	96.4	0.0	-0.6	-0.6
8	P9	95.1	-0.3	-0.3	0.0
8	P10	97.2	-0.1	-0.3	-0.3

8	P11	93.0	0.3	-0.5	-0.3
8	P12	91.2	0.0	-0.6	-0.2
8	P13	92.8	0.6	-0.1	0.5
8	P14	91.1	0.2	0.1	0.4
8	P15	93.6	0.2	0.0	0.3
8	P16	92.0	0.4	0.0	0.3
8	P17	92.1	0.7	0.2	0.5
8	P18	93.7	0.7	0.1	0.3
8	P19	92.8	0.5	0.2	0.2
8	P20	93.1	0.4	0.3	0.4
8	P21	91.4	0.2	-0.2	0.2
8	P22	93.2	0.3	0.2	0.2
8	P23	92.0	0.0	-0.1	0.1
8	P24	93.7	0.2	-0.1	0.0
8	P25	92.5	0.2	0.1	0.4

Tracking Code: TC0430--0495	Part #: EEDP-016-06.00-DV1-DV2-2
Part description: Edge Card Twin-ax Differential Pair Cable Assy	

DATA Continued

SUPPLEMENTAL TESTS

Connector/Cable Pull, Monitor GND for continuity:

Test Date:	10/5/2004
Operator:	Troy Cook
Temperature (C):	24
Humidity (RH):	36%
Equipment ID:	TCT-03
Load Cell:	LC-2500N(icell)

	GND... 0 Deg.		GND …90 Deg.	
Sample#	Maximum Force (Lbs)	Failure Mode	Maximum Force (Lbs)	Failure Mode
1	163.70	*Cable broke at connector*	130.57	*Cable broke at connector*
2	161.60	*Cable broke at connector*	131.32	*Cable broke at connector*
3	176.86	*Cable broke at connector*	94.68	*Cable broke at connector*
4	172.25	*Cable broke at connector*	99.12	*Cable broke at connector*
5	166.21	*Cable broke at connector*	84.53	*Cable broke at connector*

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: THL-02
Description: Temperature/Humidity Chart Recorder
Manufacturer: Dickson
Model: THDX
Serial #: 00120351
Accuracy: Temp: +/- 1C; Humidity: +/-2% RH (0 - 60%) +/- 3% RH (61 - 95%).
… Last Cal: 6/02/04, Next Cal: 6/02/05

Equipment #: MO-02
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0780546
Accuracy: See Manual
… Last Cal: 6/12/03, Next Cal: 6/12/04

Equipment #: MO-04
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0798688
Accuracy: See Manual
… Last Cal: 6/12/03, Next Cal: 6/12/04

Equipment #: PS-01
Description: System Power Supply
Manufacturer: Hewlett Packard
Model: HP 6033A
Serial #: (HP) 3329A-07330
Accuracy: See Manual
… Last Cal: 6/12/03, Next Cal: 6/12/04

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

Equipment #: HPM-01
Description: Hipot Megommeter
Manufacturer: Hipotronics
Model: H306B-A
Serial #: M9905004
Accuracy: 2 % Full Scale Accuracy
… Last Cal: 6/12/03, Next Cal: 6/12/04

EQUIPMENT AND CALIBRATION SCHEDULES Continued

Equipment #: OV-03
Description: Cascade Tek Forced Air Oven
Manufacturer: Cascade Tek
Model: TFO-5
Serial #: 0500100
Accuracy: Temp. Stability: +/-.1C/C change in ambient Temp. Stability: +/-.1C/C change in ambient
… Last Cal: 6/20/03, Next Cal: 6/30/04

Equipment #: THC-01
Description: Temperature/Humidity Chamber
Manufacturer: Thermotron
Model: SM-8-7800
Serial #: 30676
Accuracy: See Manual
… Last Cal: 4/22/2004, Next Cal: 5/22/2005

Equipment #: MO-01
Description: Micro-Ohmeter
Manufacturer: Keithley
Model: 580
Serial #: 0772740
Accuracy: See Manual
… Last Cal: 6/12/03, Next Cal: 6/12/04

Equipment #: MO-03
Description: Multimeter /Data Acquisition System
Manufacturer: Keithley
Model: 2700
Serial #: 0791975
Accuracy: See Manual
… Last Cal: 6/12/03, Next Cal: 6/12/04

Equipment #: TCT-03
Description: Dillon Quantrol TC2 Test Stand
Manufacturer: Dillon Quantrol
Model: TC2
Serial #: 00120351
Accuracy: Speed Accuracy: +/- 5% of indicated speed; Displacement: +/- 5 micrometers.
… Last Cal: 6/12/03, Next Cal: 6/12/04

Equipment #: LC-2500N(icell)
Description: 2500 N Load Cell for Dillon Quantrol
Manufacturer: Dillon Quantrol
Model: icell
Serial #: 01-0132-01
Accuracy: .10% of capacity
… Last Cal: 4/27/04, Next Cal: 4/27/05

EQUIPMENT AND CALIBRATION SCHEDULES Continued

Equipment #: HDR - 01
Description: HDR Flex Tester
Manufacturer: Samtec Inc.
Model: AT-1440-000
Serial #: AT-1440-000
Accuracy: N/A
… Last Cal: No Calibration Required