JUNE 28, 1993

TEST REPORT #93274

DURABILITY TEST
FOLC SERIES

SAMTEC CORPORATION

APPROVED BY: MAX PEEL
PRESIDENT AND DIRECTOR OF ADVANCED RESEARCH
CONTECH RESEARCH, INC.

Contech Research

CERTIFICATION

This is to certify that the evaluation described herein was designed and executed by personnel of Contech Research, Inc. It was performed with the concurrence of Samtec Corporation of New Albany, IN who was the test sponsor.

All equipment and measuring instruments used during testing were calibrated and traceable to NIST according to MIL-STD-45662, as applicable.

All data, raw and summarized, analysis and conclusions presented herein are the property of the test sponsor. No copy of this report, in part or in full, shall be forwarded to any agency, customer, etc., by Contech Research without the written approval of the sponsor.

Max Peel
President

MP/js

Equipment List June 28, 1993

ID#	Last Cal	Next Cal	Equipment Name	Manufacturer	Accuracy	Model #	Serial #	Freq Cal
199			Cycling Machine	Contech Research	N/A	PM925A11	2407	N/A
252			Computer System	Packard Bell	N/A	286	105673	N/A
295	2/18/93	8/18/93	Micro Ohm Meter	Keithley Company	See manual	580	480781	6 months

TEST RESULTS

PROJECT NO.: 93274	SPECIFICATION: N/A
PART NO.: FOLC	PART DESCRIPTION: Connector Receptacles
SAMPLE SIZE: Two	TECHNICIAN: MHB
START DATE: 6-15-93	COMPLETE DATE: 6-22-93
ROOM AMBIENT: 24°C	RELATIVE HUMIDITY: 48%
EQUIPMENT ID#: 199, 252, 295	

DURABILITY

PROCEDURE:

1. The receptacle connectors were mounted to test boards as supplied by the test boards.

2. The connectors were hand soldered in place and cleaned with Isopropyl alcohol.

3. Initial and all subsequent low level circuit resistance was performed in accordance with MIL-STD-1344, Method 3002 using a 100 milliamp maximum test voltage and a 20.0 millivolt open circuit voltage.

4. The test was performed in accordance with MIL-STD-1344, Method 2016.

5. Test Conditions:

   a) No. of Cycles : 10,000 cycles
   b) Rate : 500 cycles/hour
   c) Mating Device : Header with gold plated pins 0.018 ± 0.002 inch diameter

6. The test samples were mounted in equipment with a constant speed control and counter systems.

7. The test samples were axially aligned to accomplish the mating and unmating function allowing for self-centering movement.

8. Low level circuit resistance was measured initially after 500, 1000, 2500, 5000, 7500 and 10,000 cycles.

REQUIREMENTS: See next page.

REQUIREMENTS:

1. There shall be no evidence of physical damage to the test samples so tested.

2. The low level circuit resistance shall be measured and recorded.

RESULTS:

1. There was no evidence of physical damage to the test samples as tested.

2. The following is a summary of the data observed:

		LOW LEVEL CIRCUIT RESISTANCE (Milliohms)			
A)	Socket ID #1	Avg.	Max	Avg. Change	Max. Change
	Initial	7.2	8.9	- -	- -
	500 Cycles	7.4	8.6	+0.2	+1.4
	1000 Cycles	7.5	8.5	+0.3	+1.2
	2500 Cycles	8.1	9.1	+0.9	+3.7
	5000 Cycles	8.4	11.2	+1.2	+3.5
	7500 Cycles	8.6	12.8	+1.4	+5.1
	10000 Cycles	8.1	11.8	+0.9	+4.1
B)	Socket ID #2				
	Initial	8.1	11.1	- -	- -
	500 Cycles	8.1	9.7	0.0	+2.3
	1000 Cycles	8.0	11.7	-0.1	+3.9
	2500 Cycles	9.2	12.3	+1.1	+4.6
	5000 Cycles	10.9	17.2	+2.8	+9.4
	7500 Cycles	10.4	14.7	+2.3	+7.0
	10000 Cycles	10.6	14.6	+2.5	+7.7

3. See data files 327401.LCR and 327402.LCR for individual data points.

LOW-LEVEL CONTACT RESISTANCE

Project #: 93274
Customer: SAMTEC
Product: CONNECTOR ID# 1
Description: CYCLING TEST

Spec: MIL-STD-1344 METHOD:3002
SubGroup: N/A
File #: 327401.LCR
Print Date: 23Jun93

Open circuit voltage: 20 millivolts

Test current: 100 milliamps

Units: milliohms
Delta values

Temp °C	+25	+25	+24	+24	+24	+24	+24
R.H.%	51	51	50	50	50	44	44
Date	15Jun93	15Jun93	16Jun93	16Jun93	16Jun93	17Jun93	17Jun93
Pos ID	INITIAL	500X	1000X	2500X	5000X	7500X	10000X
1	6.7	+0.6	+0.9	+1.2	+2.3	+2.4	+2.4
3	6.6	+0.4	+0.5	+1.7	+1.9	+2.0	+0.9
5	7.8	-0.8	-1.0	-0.3	-0.5	-1.2	-1.3
7	6.7	-0.0	-0.6	+0.7	+1.6	+2.2	+1.4
9	7.4	+0.1	+1.1	+1.1	+1.4	+2.2	+0.6
11	8.9	-0.5	-0.6	0.0	+0.0	-0.3	-0.1
13	8.3	+0.3	+0.2	+0.2	+0.3	-0.2	+0.2
15	7.0	+0.0	+0.4	+1.3	+2.6	+1.8	+1.5
21	7.4	+0.2	+0.2	+0.9	-0.2	+0.8	+0.5
23	7.7	-0.4	+0.4	+1.4	+3.5	+5.1	+4.1
25	7.8	-0.6	-0.1	+0.9	+0.8	+1.3	+1.1
27	5.1	+1.4	+1.2	+3.7	+2.4	+3.4	+1.3
29	6.2	+0.6	+0.5	+0.7	+0.2	+0.3	+0.0
31	7.1	+0.6	+0.4	+0.8	+1.2	+0.9	+0.5
33	7.0	+0.7	-0.1	+0.4	+1.0	+1.9	+1.1
35	7.9	+0.5	+0.5	-0.1	+0.4	+0.5	+0.5
HIGH	8.9	+1.4	+1.2	+3.7	+3.5	+5.1	+4.1
LOW	5.1	-0.8	-1.0	-0.3	-0.5	-1.2	-1.3
AVG	7.2	+0.2	+0.3	+0.9	+1.2	+1.4	+0.9
STD DEV	0.9	0.6	0.6	0.9	1.1	1.5	1.2
OPENS	0	0	0	0	0	0	0
INITIALS	MHB	MHB	MHB	MHB	MHB	MHB	MHB

NOTES:
1 - An asterisk (*) indicates an open circuit or a value greater than 10 ohms.

LOW-LEVEL CONTACT RESISTANCE

Project #: 93274
Customer: SAMTEC
Product: CONNECTOR ID# 2
Description: CYCLING TEST

Spec: MIL-STD-1344 METHOD:3002
SubGroup: N/A
File #: 327402.LCR
Print Date: 23Jun93

Open circuit voltage: 20 millivolts

Test current: 100 milliamps

Units: milliohms
Delta values

Temp °C	+25	+24	+24	+24	+23	+23	+24
R.H.%	51	43	43	43	47	47	52
Date	15Jun93	18JUN93	18JUN93	18JUN93	21JUN93	21JUN93	22JUN93
Pos ID	INITIAL	500X	1000X	2500X	5000X	7500X	10000X
1	9.4	-1.6	-2.3	-1.9	-1.6	-1.3	-0.9
3	9.0	+0.4	+0.4	-0.0	+1.6	+1.8	+2.7
5	6.7	+0.8	-0.0	+0.6	+2.1	+2.3	+4.0
7	8.0	+1.6	-0.5	+0.4	+2.2	+1.0	+2.1
9	10.4	-0.6	-2.6	-1.6	+1.2	+1.7	+1.3
11	11.1	-1.4	-2.7	+0.7	-1.1	-0.9	+1.1
13	8.6	-0.3	-2.7	-1.1	+2.3	-0.2	+2.2
15	6.9	+0.7	-0.3	+0.1	+3.4	+2.8	+7.7
17	8.7	-0.2	-1.4	+0.8	+1.7	+3.0	+3.2
19	7.8	-0.8	-1.8	+1.3	+2.3	+2.5	+3.0
21	9.8	-1.5	-1.2	+0.1	+0.6	+1.5	-0.8
23	8.7	-1.4	-1.4	+0.7	+0.8	+0.4	+0.1
25	6.3	+2.3	+0.9	+1.4	+4.1	+1.4	+3.6
27	6.4	+0.1	-0.1	+1.1	+2.8	+2.6	+2.6
29	6.7	+0.3	+1.3	+1.5	+3.0	+2.3	+1.3
31	7.0	+0.1	+1.9	+2.7	+3.5	+3.6	+2.3
33	7.8	-0.1	+1.6	+3.2	+4.6	+4.8	+6.4
35	7.7	+0.7	+2.9	+4.6	+8.5	+7.0	+3.5
37	7.8	+0.6	+3.9	+4.4	+9.4	+6.9	+2.1
39	7.2	+1.3	+2.3	+2.2	+5.2	+2.5	+2.8
HIGH	11.1	+2.3	+3.9	+4.6	+9.4	+7.0	+7.7
LOW	6.3	-1.6	-2.7	-1.9	-1.6	-1.3	-0.9
AVG	8.1	+0.0	-0.1	+1.1	+2.8	+2.3	+2.5
STD DEV	1.4	1.1	2.0	1.7	2.7	2.2	2.1
OPENS	0	0	0	0	0	0	0
INITIALS	MHB	MHB	MHB	MHB	MHB	MHB	MHB

NOTES:

1 - An asterisk (*) indicates an open circuit or a value greater than 10 ohms.