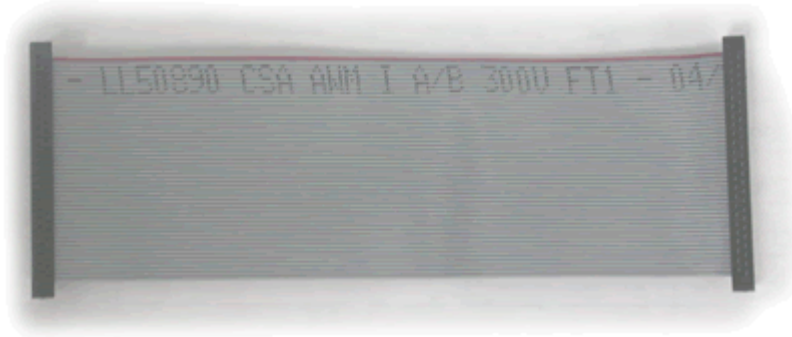




Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02			



DVT. Summary Report (Old TC0240--0759)

PART DESCRIPTION

FFMD-25-D-2-01-F



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD			Qty to test: 25	
Test Start: 10/07/02	Test Completed: 11/15/02			

CERTIFICATION

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

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Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD			Qty to test: 25	
Test Start: 10/07/02	Test Completed: 11/15/02			

SCOPE

To perform the following tests: DVT. OLD TC0240--0759

APPLICABLE DOCUMENTS

Standards: EIA Publication 364

TEST SAMPLES AND PREPARATION

- 1) All materials were manufactured in accordance with the applicable product specification.
- 2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
- 3) After soldering, the parts to be used for LLCR testing were cleaned according to TLWI-0001:
 - a) Sample test boards are to be ultrasonically cleaned after test lead attachment, preparation and/or soldering using the following process.
 - b) Sample test boards are immersed into Branson 3510 cleaner containing Kyzen Ionox HC1 (or equivalent) with the following conditions:
 - i) Temperature: 55° C +/- 5° C
 - ii) Frequency: 40 KHz
 - iii) Immersion Time: 5 to 10 Minutes
 - 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 test boards are rinsed for 1/2 to 1 minute in room temperature 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.
- 4) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
- 5) Any additional preparation will be noted in the individual test procedures.



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA		
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

FLOWCHARTS

TEST STEP	GROUP A Near End 6 Contacts in a linear series	GROUP A Far End 6 Contacts in a linear series
01	CCC	CCC

Tabulate calculated current at RT, 60° C, 75° C and 80° C
after derating 20% and based on 105 ° C

TEST STEP	GROUP A 2 Connectors Ambient	GROUP B1 2 Connectors Ambient	GROUP B2 2 Connectors Thermal Shock	GROUP B3 2 Connectors Humidity
01	IR	Breakdown/DWV/WV	Thermal Aging	Humidity
02	Thermal Aging		Breakdown/DWV/WV	Breakdown/DWV/WV
03	IR			
04	Humidity			
05	IR			

Test .. Outside, Inside and Row-Row

Thermal Aging = EIA-364-17, 105 deg C, Condition 'C' for 500 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

DWV = EIA-364-20



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD			Qty to test: 25	
Test Start: 10/07/02	Test Completed: 11/15/02			

FLOWCHARTS continued

TEST STEP	GROUP A 200 Points
01	LLCR-1
03	Thermal Aging
04	LLCR-2
05	Cyclic Humidity
06	LLCR-3

Thermal Aging = EIA-364-17, 105 deg C, Condition 'C' for 500 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

LLCR = EIA-364-23, LLCR

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

TEST STEP	GROUP A 200 Points (min)
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



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

ATTRIBUTE DEFINITION

Following is a brief, simplified description of attributes.

THERMAL AGING:

- 1) EIA-364-17, *Temperature Life with or without Electrical Load Test Procedure for Electrical Connectors*.
 - a) Test Condition 4 at 105° C.
 - b) Test Time Condition C for 500 hours.
- 2) Connectors are mated.

CYCLIC HUMIDITY:

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

TEMPERATURE RISE (Current Carrying Capacity, CCC):

- 1) EIA-364-70, *Temperature Rise versus Current Test Procedure for Electrical Connectors and Sockets*.
- 2) When current passes through a contact, the temperature of the contact increases as a result of I^2R (resistive) heating.
- 3) The number of contacts being investigated plays a significant part in power dissipation and therefore temperature rise.
- 4) The size of the temperature probe can affect the measured temperature.
- 5) Copper traces on PC boards will contribute to temperature rise:
 - a) Self heating (resistive)
 - b) Reduction in heat sink capacity affecting the heated contacts
- 6) A de-rating curve, usually 20%, is calculated.
- 7) Calculated de-rated currents at three temperature points are reported:
 - a) Ambient
 - b) 60 ° C
 - c) 75 ° C
 - d) 80 ° 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.



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD			Qty to test: 25	
Test Start: 10/07/02	Test Completed: 11/15/02			

ATTRIBUTE DEFINITION 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
 - ii) Unmated
 - iii) Mounted
 - iv) Rate of Application 500 V/Sec
 - v) Test Voltage (VAC) until breakdown occurs
- 2) MEASUREMENTS/CALCULATIONS
 - a) The breakdown voltage shall be measured and recorded.
 - b) The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
 - c) The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage).

INSULATION RESISTANCE (IR):

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

- 1) PROCEDURE:
 - a) Reference document: EIA-364-21, *Insulation Resistance Test Procedure for Electrical Connectors*.
 - b) Test Conditions:
 - i) Between Adjacent Contacts
 - ii) Unmated
 - iii) Mounted
 - iv) Electrification Time 2.0 minutes
 - v) Test Voltage (VDC) corresponding to calibration settings for measuring resistances
- 2) MEASUREMENTS:
 - a) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 5000 megOhms.



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

ATTRIBUTE DEFINITION Continued

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 durability
 - a) $\leq +5.0$ 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) $>+50$ to $+2000.0$ 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 durability
 - a) $\leq +5.0$ 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) $>+50$ to $+2000.0$ mOhms: Unstable
 - f) $>+2000$ mOhms: Open Failure
- 4) Procedure:
 - a) Reference document: EIA-364-36, *Test Procedure for Determination of Gas-Tight Characteristics for Electrical Connectors, Sockets and/or Contact Systems*.
 - b) Test Conditions:
 - i) Class II--- Mated pairs of contacts assembled to their plastic housings.
 - ii) Reagent grade Nitric Acid shall be used of sufficient volume to saturate the test chamber
 - iii) The ratio of the volume of the test chamber to the surface area of the acid shall be less than 10.
 - iv) The chamber shall be saturated with the vapor for at least 15 minutes before samples are added.
 - v) Exposure time – 55 to 65 minutes.
 - vi) The samples shall be no closer to the chamber walls than 1 inches and no closer to the surface of the acid than 3 inches.
 - vii) The samples shall be dried after exposure for a minimum of 1 hour.
 - viii) Drying temperature 50° C
 - ix) The final LLCR shall be conducted within 1 hour after drying.



Project Number: NA		Tracking Code: TC0240-NA-0017	
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Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

RESULTS

Temperature Rise, CCC

- At opposite end of cable, at 75°C, relative to 105°C---1.7 A at 20% de-rated with 6 adjacent conductors powered
- On powered end of cable, at 75°C, relative to 105°C --1.8 A at 20% de-rated with 6 adjacent conductors powered

Dielectric Withstanding Voltage minimums, DWV

- Initial
 - Breakdown
 - Inner Row----- 1150 VAC
 - Outer Row ----- 1120 VAC
 - Row-Row----- 1200 VAC
 - DWV
 - Inner Row-----863 VAC
 - Outer Row -----840 VAC
 - Row-Row-----900 VAC
 - Working voltage
 - Inner Row-----288 VAC
 - Outer Row -----280 VAC
 - Row-Row-----300 VAC
- Thermal
 - Breakdown
 - Inner Row----- 1200 VAC
 - Outer Row ----- 1400 VAC
 - Row-Row----- 1200 VAC
 - DWV
 - Inner Row-----900 VAC
 - Outer Row ----- 1050 VAC
 - Row-Row-----900 VAC
 - Working voltage
 - Inner Row-----300 VAC
 - Outer Row -----350 VAC
 - Row-Row-----300 VAC
- Humidity
 - Breakdown
 - Inner Row----- 1200 VAC
 - Outer Row ----- 1100 VAC
 - Row-Row----- 1150 VAC
 - DWV
 - Inner Row-----900 VAC
 - Outer Row -----825 VAC
 - Row-Row-----863 VAC
 - Working voltage
 - Inner Row-----300 VAC
 - Outer Row -----275 VAC
 - Row-Row-----288VAC



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

RESULTS Continued

Insulation Resistance minimums, IR

- **Initial**
 - Inner Row-----100,000 Meg ----- Pass
 - Outer Row ----- 10,000 Meg ----- Pass
 - Row-Row----- 50,000 Meg ----- Pass
- **Thermal**
 - Inner Row-----100,000 Meg
 - Outer Row -----100,000 Meg
 - Row-Row-----100,000 Meg
- **Humidity-----**
 - Inner Row----- 50,000 Meg
 - Outer Row ----- 50,000 Meg
 - Row-Row-----100,000 Meg

LLCR Environmental (200 LLCR test points)

- **Initial ----- 47.7 mOhms Max**
- **Thermal**
 - <= +5.0 mOhms ----- 179 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 10 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 5 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 6 Points ----- Marginal
 - +50.1 mOhms to +2000 mOhms ----- 0 Points ----- Unstable
 - >+2000 mOhms ----- 0 Points ----- Open Failure
- **Humidity**
 - <= +5.0 mOhms ----- 175 Points ----- Stable
 - +5.1 to +10.0 mOhms ----- 14 Points ----- Minor
 - +10.1 to +15.0 mOhms ----- 6 Points ----- Acceptable
 - +15.1 to +50.0 mOhms ----- 5 Points ----- Marginal
 - +50.1 mOhms to +2000 mOhms ----- 0 Points ----- Unstable
 - >+2000 mOhms ----- 0 Points ----- Open Failure

LLCR Gas Tight (200 LLCR test points)

- **Initial ----- 40.2 mOhms Max**
- **Gas-Tight**
 - <= +5.0 mOhms ----- 199 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 mOhms to +2000 mOhms ----- 0 Points ----- Unstable
 - >+2000 mOhms ----- 0 Points ----- Open Failure

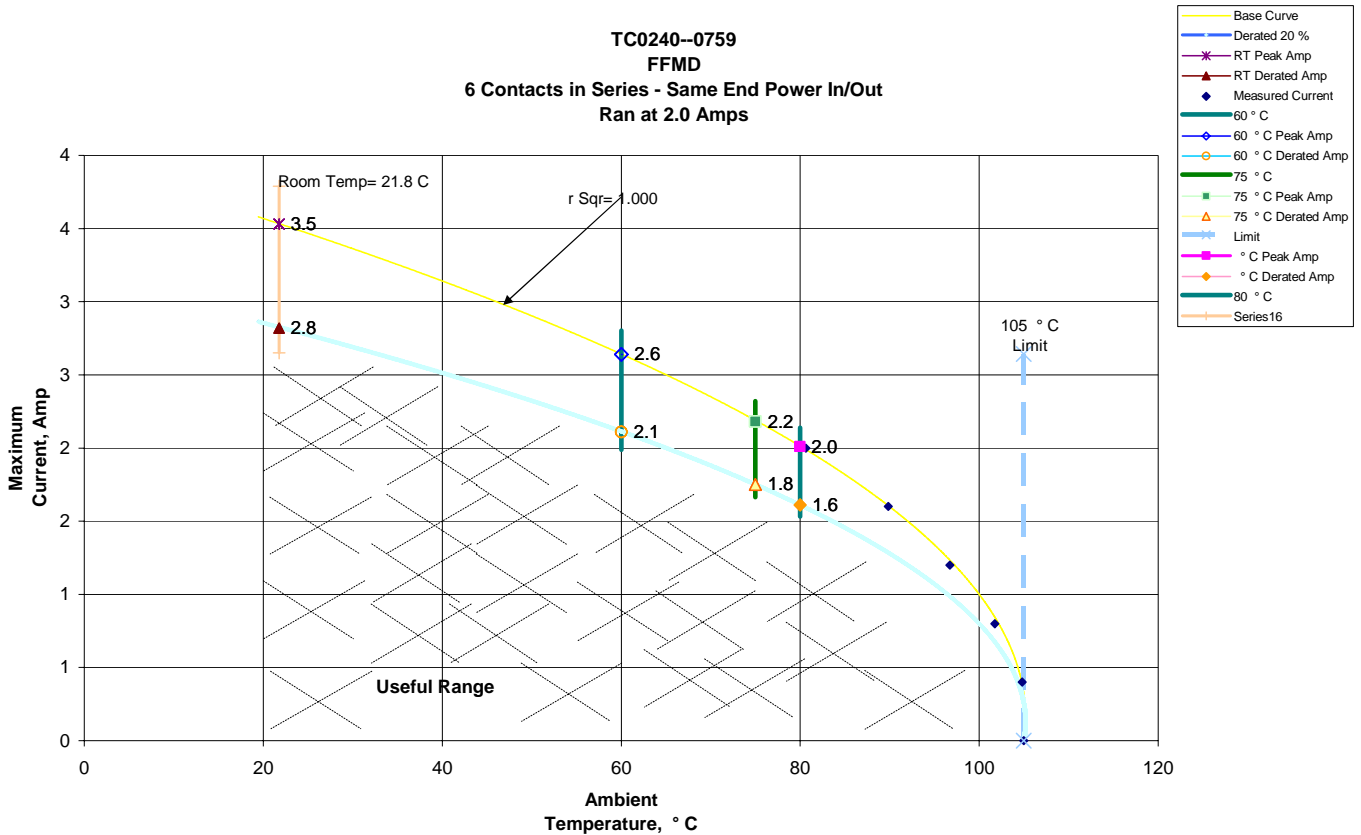


Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

DATA SUMMARIES

TEMPERATURE RISE (Current Carrying Capacity, CCC):

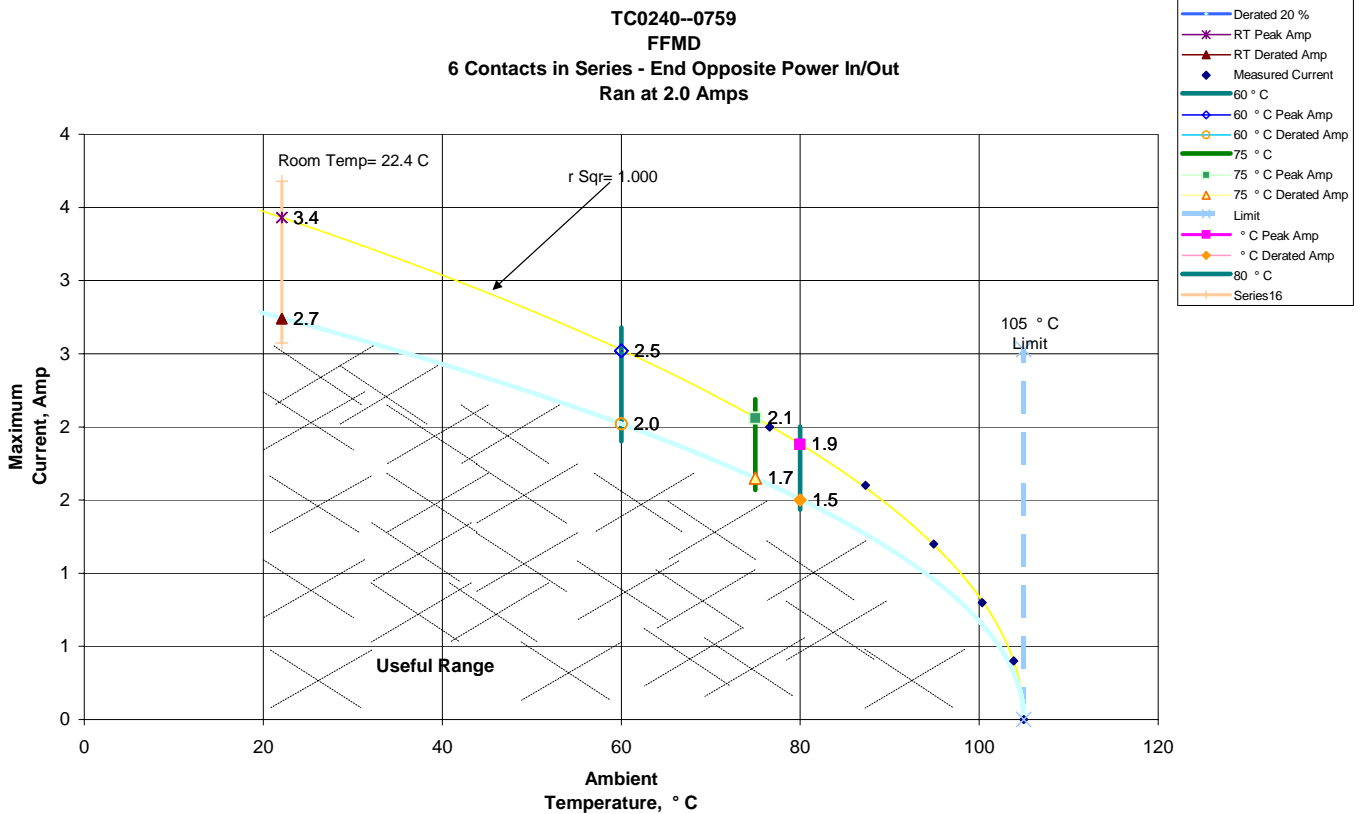
- 1) High quality thermocouples whose temperature slopes track one another were used for temperature monitoring.
- 2) The thermocouples were placed at a location to sense the MAXIMUM temperature generated during testing.
- 3) Temperature readings recorded are those for which three successive readings, 15 minutes apart, differ less than 1° C (computer controlled data acquisition).
- 4) Six contacts in series between adjacent wires were tested.





Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

DATA SUMMARIES Continued





Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

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

Values in VAC Initial INNER ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1175	881	294
Min	1150	863	288
Max	1200	900	300

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

Values in VAC Initial OUTER ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1160	870	290
Min	1120	840	280
Max	1200	900	300

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

Values in VAC Initial ROW-ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1275	956	319
Min	1200	900	300
Max	1350	1013	338



Project Number: NA		Tracking Code: TC0240-NA-0017		
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Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC Eng: JT
Part description: FFMD				Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02			

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

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

Values in VAC

Thermal INNER ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1250	938	313
Min	1200	900	300
Max	1300	975	325

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

Values in VAC

Thermal OUTER ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1400	1050	350
Min	1400	1050	350
Max	1400	1050	350

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

Values in VAC

Thermal ROW-ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1250	938	313
Min	1200	900	300
Max	1300	975	325



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA SUMMARIES Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

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

Values in VAC Humidity INNER ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1250	938	313
Min	1200	900	300
Max	1300	975	325

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

Values in VAC Humidity OUTER ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1100	825	275
Min	1100	825	275
Max	1100	825	275

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

Values in VAC Humidity ROW-ROW

	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
Average	1175	881	294
Min	1150	863	288
Max	1200	900	300



Project Number: NA		Tracking Code: TC0240-NA-0017	
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Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

Mohms Initial INNER ROW
 Electrification
 Time *Two (2)*
 minutes

	<u>Insulation</u>
	<u>Resistance</u>
Average	100000
Min	100000
Max	100000

Mohms Initial OUTER ROW
 Electrification
 Time *Two (2)*
 minutes

	<u>Insulation</u>
	<u>Resistance</u>
Average	55000
Min	10000
Max	100000

Mohms Initial ROW-ROW
 Electrification
 Time *Two (2)*
 minutes

	<u>Insulation</u>
	<u>Resistance</u>
Average	75000
Min	50000
Max	100000



Project Number: NA		Tracking Code: TC0240-NA-0017			
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Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD					Qty to test: 25
Test Start: 10/07/02		Test Completed: 11/15/02			

DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

Mohms
Thermal INNER ROW
Electrification Time *Two (2) minutes*

	<u>Insulation Resistance</u>
Average	100000
Min	100000
Max	100000

Mohms
Thermal OUTER ROW
Electrification Time *Two (2) minutes*

	<u>Insulation Resistance</u>
Average	100000
Min	100000
Max	100000

Mohms
Thermal ROW-ROW
Electrification Time *Two (2) minutes*

	<u>Insulation Resistance</u>
Average	100000
Min	100000
Max	100000



Project Number: NA		Tracking Code: TC0240-NA-0017		
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Part description: FFMD				Qty to test: 25
Test Start: 10/07/02		Test Completed: 11/15/02		

DATA SUMMARIES Continued

INSULATION RESISTANCE (IR):

Mohms Humidity	INNER ROW After Humidity Electrification Time	<i>Two (2) minutes</i>
Average	75000	
Min	50000	
Max	100000	

Mohms Humidity	OUTER ROW After Humidity Electrification Time	<i>Two (2) minutes</i>
Average	75000	
Min	50000	
Max	100000	

Mohms Humidity	ROW-ROW After Humidity Electrification Time	<i>Two (2) minutes</i>
Average	100000	
Min	100000	
Max	100000	



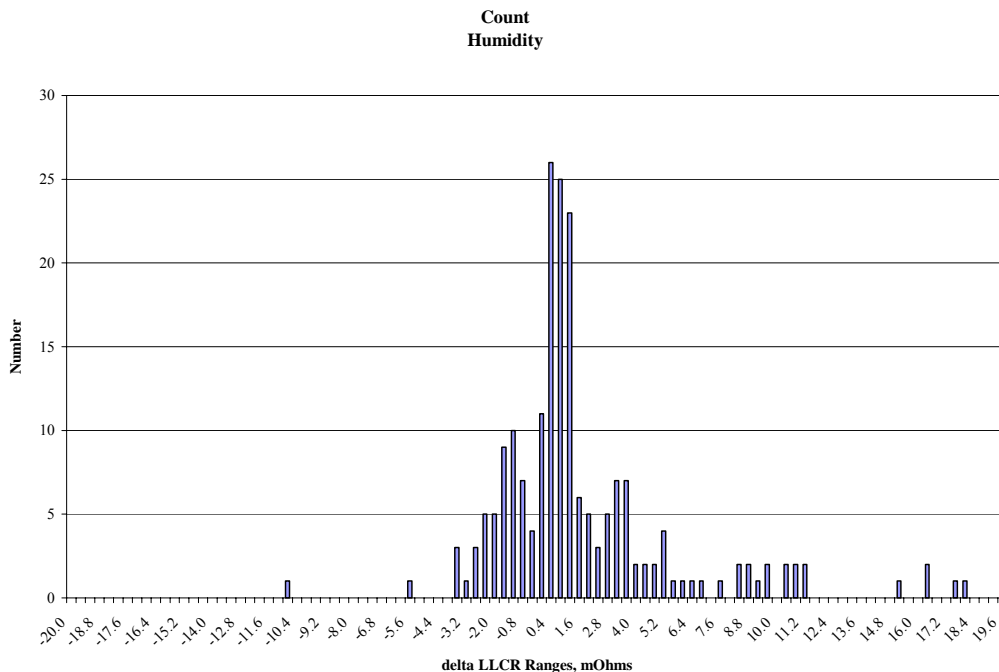
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Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

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 durability.
 - a) $\leq +5.0$ 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) $>+50$ mOhms: Unstable
 - f) $>+2000$ mOhms: Open Failure

mOhm values	Actual Initial	Delta Thermal	Delta Humidity
Average	36.7	1.2	1.5
St. Dev.	2.2	4.2	4.0
Min	21.7	-11.1	-11.1
Max	47.7	20.9	17.6
Count	200	200	200





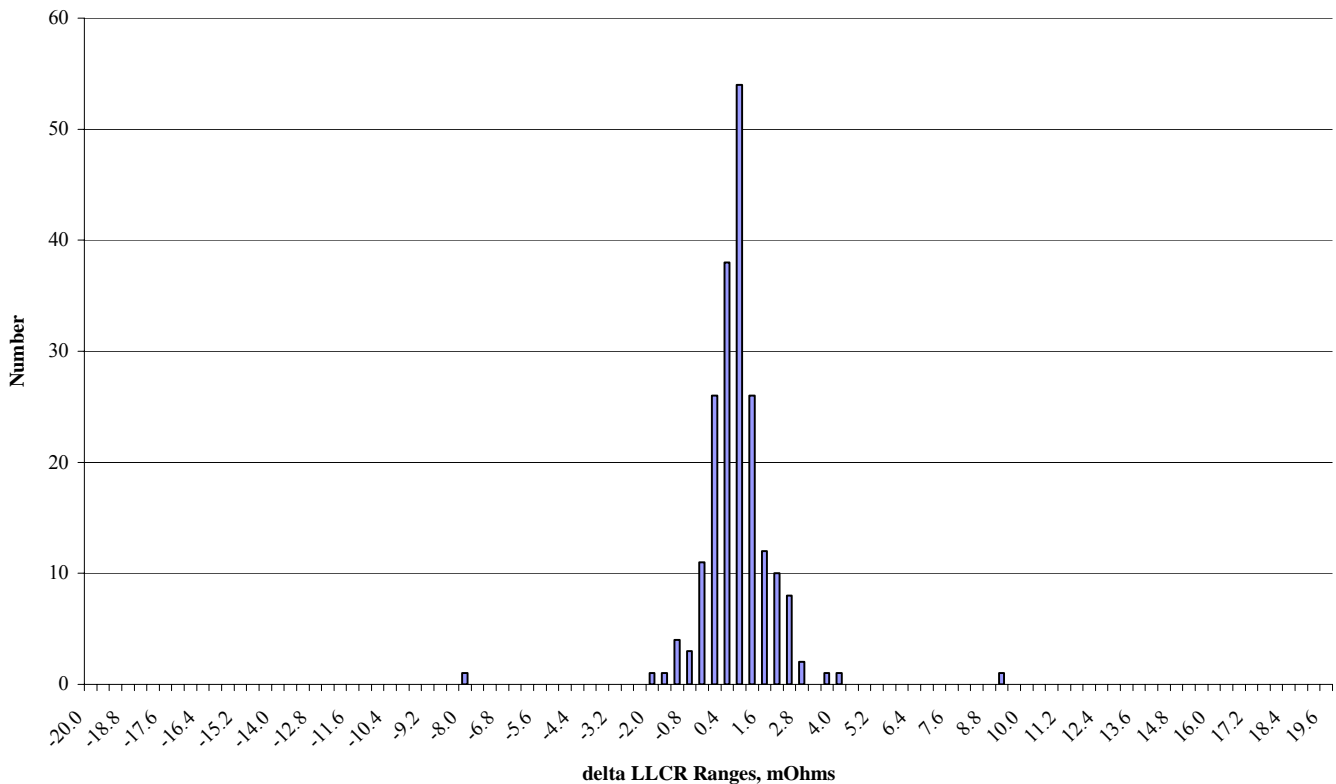
Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

DATA SUMMARIES Continued

GAS TIGHT:

mOhm values	Actual Initial	Delta Gas Tight
Average	36.1	0.5
St. Dev.	2.0	1.2
Min	18.5	-8.2
Max	40.2	8.9
Count	200	200

**Count
Gas Tight**





Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Initial	10/9/2002
Operator:	INNER	
Temperature (C):	ROW	TC
Humidity (RH):		21
Pressure (In. Hg):		42%
Equipment Code Number		29.50
		19

Contact Description	
1. Contact Part #:	N/A
2. Series Contact is Used In:	FFMD

Test Conditions		YES	NO
	<u>Between Adjacent Contacts</u>	X	
	<u>Mated</u>		X
	<u>PC Mounted</u>	X	

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

Values in VAC

<u>Board/Sample #</u>	Initial INNER ROW		
	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
1	1150	863	288
2	1200	900	300



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Initial	10/9/2002
Operator:	OUTER	
Temperature (C):	ROW	TC
Humidity (RH):		21
Pressure (In. Hg):		42%
Equipment Code Number		29.50
		19

Contact Description

1. Contact Part #:	N/A
2. Series Contact is Used In:	FFMD

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

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

Values in VAC	Initial	OUTER ROW	
Board/Sample #	Breakdown Voltage	DWV	Working Voltage
1	1120	840	280
2	1200	900	300



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Initial	10/9/2002
Operator:	ROW-ROW	TC
Temperature (C):		21
Humidity (RH):		42%
Pressure (In. Hg):		29.50
Equipment Code Number		19

Contact Description

1. Contact Part #:	N/A
2. Series Contact is Used In:	FFMD

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

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

Values in VAC

Board/Sample #	Initial		ROW-ROW
	Breakdown Voltage	DWV	Working Voltage
1	1200	900	300
2	1350	1013	338



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Thermal	10/30/2002
Operator:	INNER	
Temperature (C):	ROW	TC
Humidity (RH):		22
Pressure (In. Hg):		46%
Equipment Code Number		29.35
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions	<u>Between Adjacent Contacts</u>	<u>YES</u>	<u>NO</u>
	<u>Mated</u>	X	X
	<u>PC Mounted</u>	X	

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

Values in VAC Thermal INNER ROW

<u>Board/Sample #</u>	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
1	1300	975	325
2	1200	900	300



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Thermal	10/30/2002
Operator:	OUTER	TC
Temperature (C):	ROW	22
Humidity (RH):		46%
Pressure (In. Hg):		29.35
Equipment Code Number		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

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

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

Values in VAC	Thermal	OUTER ROW	
Board/Sample #	Breakdown Voltage	DWV	Working Voltage
1	1400	1050	350
2	1400	1050	350



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Thermal	10/30/2002
Operator:	ROW-	
Temperature (C):	ROW	TC
Humidity (RH):		22
Pressure (In. Hg):		46%
Equipment Code Number		29.35
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

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

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

Values in VAC Thermal ROW-ROW

<u>Board/Sample #</u>	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
1	1200	900	300
2	1300	975	325



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Humidity	11/1/2002
Operator:	INNER	
Temperature (C):	ROW	TC
Humidity (RH):		23
Pressure (In. Hg):		39%
Equipment Code Number		29.59
		19

Contact Description	
1. Contact Part #:	N/A
2. Series Contact is Used In:	FFMD

Test Conditions	YES	NO
	<u>Between Adjacent Contacts</u>	
	<u>Mated</u>	X
	<u>PC Mounted</u>	X

Rate Of Applied Voltage 500 V Per Sec.

Test Voltage Until Breakdown Occurs

Values in VAC

Humidity INNER ROW

<u>Board/Sample #</u>	<u>Breakdown Voltage</u>	<u>DWV</u>	<u>Working Voltage</u>
1	1200	900	300
2	1300	975	325



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Test Date:	Humidity	11/1/2002
Operator:	OUTER	
Temperature (C):	ROW	TC
Humidity (RH):		23
Pressure (In. Hg):		39%
Equipment Code Number		29.59
		19

Contact Description

1. Contact Part #:	N/A
2. Series Contact is Used In:	FFMD

Test Conditions	<u>Between Adjacent Contacts</u>	<u>YES</u>	<u>NO</u>
	<u>Mated</u>	X	X
	<u>PC Mounted</u>	X	

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

Values in VAC

Board/Sample #	Humidity		Working Voltage
	Breakdown Voltage	DWV	
1	1100	825	275
2	1100	825	275



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Initial	10/8/2002
Operator:	INNER	
Temperature (C):	ROW	TC
Humidity (RH):		23
Pressure (In. Hg):		42%
Equipment Code Number		29.56
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions		YES	NO
	<u>Between Adjacent Contacts</u>	X	
	<u>Mated</u>		X
	<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

Mohms Initial	INNER ROW
<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	100000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Initial	10/8/2002
Operator:	OUTER	
Temperature (C):	ROW	TC
Humidity (RH):		23
Pressure (In. Hg):		42%
Equipment Code Number		29.56
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions	YES	NO
	<u>Between Adjacent Contacts</u>	
	<u>Mated</u>	X
	<u>PC Mounted</u>	X

Electrification Time *Two (2) minutes*

Mohms Initial	OUTER ROW
Board/Sample #	Insulation Resistance
1	100000
2	10000



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Initial	10/8/2002
Operator:	ROW-ROW	TC
Temperature (C):		23
Humidity (RH):		42%
Pressure (In. Hg):		29.56
Equipment Code Number		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions	<u>Between Adjacent Contacts</u>	<u>YES</u>	<u>NO</u>
	<u>Mated</u>	X	X
	<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	50000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA		
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD					Qty to test: 25
Test Start: 10/07/02		Test Completed: 11/15/02			

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Thermal	10/30/2002
Operator:	INNER	
Temperature (C):	ROW	TC
Humidity (RH):		22
Pressure (In. Hg):		46%
Equipment Code Number		29.35
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions		YES	NO
	<u>Between Adjacent Contacts</u>	X	
	<u>Mated</u>		X
	<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

Mohms Thermal	INNER ROW
<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	100000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Thermal	10/30/2002
Operator:	OUTER	
Temperature (C):	ROW	TC
Humidity (RH):		22
Pressure (In. Hg):		46%
Equipment Code Number		29.35
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions		YES	NO
	<u>Between Adjacent Contacts</u>	X	
	<u>Mated</u>		X
	<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

Mohms	
Thermal	OUTER ROW
<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	100000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA		
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Thermal	10/30/2002
Operator:	ROW-	
Temperature (C):	ROW	TC
Humidity (RH):		22
Pressure (In. Hg):		46%
Equipment Code Number		29.35
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions		YES	NO
	<u>Between Adjacent Contacts</u>	X	
	<u>Mated</u>		X
	<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

Mohms Thermal	ROW-ROW
<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	100000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA		
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD					Qty to test: 25
Test Start: 10/07/02		Test Completed: 11/15/02			

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Humidity	11/14/2002
Operator:	INNER	
Temperature (C):	ROW	TC
Humidity (RH):		23
Pressure (In. Hg):		39%
Equipment Code Number		29.32
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions		YES	NO
	<u>Between Adjacent Contacts</u>	X	
	<u>Mated</u>		X
	<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

Mohms	
Humidity	INNER ROW
<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	50000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Humidity	11/14/2002
Operator:	OUTER ROW	TC
Temperature (C):		23
Humidity (RH):		39%
Pressure (In. Hg):		29.32
Equipment Code Number		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions	YES	NO
<u>Between Adjacent Contacts</u>	X	
<u>Mated</u>		X
<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

Mohms	OUTER ROW
Humidity	
<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	50000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

INSULATION RESISTANCE (IR):

Test Date:	Humidity	11/14/2002
Operator:	ROW-	
Temperature (C):	ROW	TC
Humidity (RH):		23
Pressure (In. Hg):		39%
Equipment Code Number		29.32
		19

Contact Description	
Contact Part #:	N/A
Series Contact is Used In:	FFMD

Test Conditions	<u>Between Adjacent Contacts</u>	<u>YES</u>	<u>NO</u>
	<u>Mated</u>	X	X
	<u>PC Mounted</u>	X	

Electrification Time *Two (2) minutes*

Mohms	ROW-ROW
Humidity	
<u>Board/Sample #</u>	<u>Insulation Resistance</u>
1	100000
2	100000



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC Eng: JT
Part description: FFMD				Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02			

DATA Continued

LLCR:

Date	Oct. 07 2002	Oct. 29 2002	Nov. 15 2002
Room Temp C	22	22	21
RH	43%	49%	36%
Initials	TC	TC	TC

mOhm values		Actual	Delta	Delta
Board	Position	Initial	Thermal	Humidity
1	P1	21.7	18.5	17.6
1	P2	31.1	-1.5	-1.2
1	P3	29.5	-0.3	-0.2
1	P4	36.3	-0.5	-0.3
1	P5	36.3	-0.5	0.1
1	P6	38.4	-2.8	-2.2
1	P7	35.3	0.6	1.1
1	P8	35.7	0.6	0.9
1	P9	36.6	-1.0	-0.7
1	P10	40.8	-4.2	-3.7
1	P11	35.3	0.4	0.9
1	P12	35.6	0.3	0.6
1	P13	37.0	-0.8	0.1
1	P14	36.9	-0.4	0.2
1	P15	35.9	0.2	0.7
1	P16	37.2	-1.1	-0.9
1	P17	34.5	1.9	1.3
1	P18	38.1	0.4	-1.6
1	P19	37.4	2.2	-1.3
1	P20	37.8	1.2	-2.0
1	P21	36.5	1.1	0.8
1	P22	39.8	-2.7	-2.6
1	P23	36.4	-0.4	0.3
1	P24	38.7	-2.4	-0.9
1	P25	35.8	4.6	-5.8
2	P1	23.8	11.5	16.1
2	P2	38.6	20.9	5.1
2	P3	39.8	15.7	10.1



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

2	P4	40.8	5.5	2.6
2	P5	37.5	3.6	17.3
2	P6	38.1	-0.7	16.0
2	P7	38.6	1.2	10.9
2	P8	36.6	-0.4	9.3
2	P9	38.2	0.1	10.8
2	P10	36.6	-0.4	-0.2
2	P11	36.4	-0.4	0.4
2	P12	35.9	1.4	0.8
2	P13	37.0	-0.9	-1.2
2	P14	36.1	0.6	3.2
2	P15	36.5	0.4	-0.6
2	P16	36.2	0.5	-0.1
2	P17	37.9	3.5	0.6
2	P18	36.1	2.5	-0.1
2	P19	37.0	6.9	3.4
2	P20	36.6	5.0	1.8
2	P21	37.2	13.3	2.5
2	P22	36.1	2.1	8.8
2	P23	39.3	7.7	8.4
2	P24	37.5	3.0	10.7
2	P25	34.9	1.8	4.7
3	P1	40.0	-3.3	-1.9
3	P2	37.4	1.6	3.9
3	P3	40.7	-4.8	-3.6
3	P4	37.5	-0.9	1.5
3	P5	36.6	0.4	0.6
3	P6	37.8	-1.1	-0.9
3	P7	37.0	-0.5	0.3
3	P8	40.8	-4.3	-3.7
3	P9	37.8	-3.1	-2.6
3	P10	39.1	-3.5	-3.1
3	P11	38.0	-2.4	-2.3
3	P12	35.2	1.4	2.0
3	P13	38.3	-2.5	-1.6
3	P14	37.3	-1.9	-1.8
3	P15	35.6	0.3	0.9
3	P16	37.7	-0.3	1.5
3	P17	35.2	1.2	1.7
3	P18	39.9	-2.8	-2.2
3	P19	38.2	-1.9	-1.3



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

3	P20	39.0	-3.2	-2.6
3	P21	37.9	-2.0	-1.5
3	P22	36.2	0.9	2.9
3	P23	36.9	1.4	2.5
3	P24	37.8	2.2	10.3
3	P25	37.0	9.7	11.0
4	P1	37.3	2.3	4.4
4	P2	38.7	1.3	3.3
4	P3	36.5	2.8	6.3
4	P4	37.4	20.8	9.4
4	P5	36.5	15.8	15.1
4	P6	35.1	0.3	0.6
4	P7	36.2	6.7	8.0
4	P8	35.4	1.9	2.9
4	P9	35.6	0.2	0.6
4	P10	35.6	0.5	1.0
4	P11	37.6	3.6	-1.3
4	P12	36.0	2.6	4.1
4	P13	36.0	-0.1	0.6
4	P14	36.3	2.4	2.9
4	P15	36.3	-0.2	0.2
4	P16	37.2	6.0	-0.8
4	P17	37.8	7.4	-1.7
4	P18	36.6	0.1	1.8
4	P19	36.8	3.1	7.4
4	P20	38.0	10.7	-2.1
4	P21	37.3	10.8	8.1
4	P22	36.8	15.5	8.6
4	P23	37.1	7.9	2.5
4	P24	38.0	7.9	5.1
4	P25	36.6	11.3	4.9
5	P1	36.0	0.1	0.7
5	P2	36.7	-0.6	0.3
5	P3	36.8	-0.9	-0.4
5	P4	37.0	-0.7	0.0
5	P5	35.3	0.2	0.5
5	P6	34.3	0.5	0.9
5	P7	36.4	-0.6	0.1
5	P8	39.3	-2.6	-1.7
5	P9	35.2	0.0	0.3
5	P10	39.7	-3.1	-2.4



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

5	P11	35.8	-0.2	0.2
5	P12	36.4	-0.6	-0.4
5	P13	37.5	-1.1	-0.3
5	P14	35.7	0.3	0.8
5	P15	40.1	-3.5	-2.9
5	P16	35.4	0.5	1.0
5	P17	35.1	0.3	0.9
5	P18	36.4	0.1	0.9
5	P19	38.1	-1.8	-1.3
5	P20	37.9	-1.9	-1.6
5	P21	36.7	-0.6	0.0
5	P22	38.1	-2.3	-1.6
5	P23	38.6	-3.0	-1.7
5	P24	38.1	-0.6	0.8
5	P25	36.2	0.1	1.3
6	P1	35.9	2.7	6.8
6	P2	35.3	0.5	0.9
6	P3	35.6	0.1	0.7
6	P4	39.5	-2.6	-1.5
6	P5	41.0	-4.3	-3.9
6	P6	35.8	0.1	0.4
6	P7	37.2	-1.0	-0.5
6	P8	35.5	0.8	1.2
6	P9	37.1	-0.3	0.1
6	P10	36.4	0.6	1.9
6	P11	35.3	0.8	1.4
6	P12	36.6	0.5	0.7
6	P13	36.2	-0.2	0.2
6	P14	36.4	0.2	0.3
6	P15	36.0	0.8	1.0
6	P16	35.9	0.8	0.8
6	P17	36.0	0.2	0.3
6	P18	35.5	0.0	0.4
6	P19	36.0	0.5	0.7
6	P20	35.9	0.6	0.7
6	P21	35.9	0.4	0.5
6	P22	35.5	1.5	3.1
6	P23	35.5	1.7	3.1
6	P24	35.6	1.9	3.5
6	P25	36.0	6.1	5.4
7	P1	35.8	4.5	0.5



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02		Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

7	P2	36.0	-0.1	1.7
7	P3	35.3	1.3	2.3
7	P4	35.0	0.6	0.7
7	P5	35.5	1.3	3.1
7	P6	35.0	0.8	1.2
7	P7	37.2	0.4	1.5
7	P8	36.2	0.3	0.2
7	P9	35.5	0.3	0.4
7	P10	38.2	-2.1	-1.5
7	P11	35.7	0.1	0.6
7	P12	35.5	0.3	0.4
7	P13	39.6	-3.2	-3.0
7	P14	36.9	0.1	0.3
7	P15	39.3	-2.1	-2.2
7	P16	35.2	0.5	0.6
7	P17	36.0	0.0	0.0
7	P18	36.5	0.1	0.2
7	P19	38.3	-1.6	-1.3
7	P20	39.7	-2.9	-2.5
7	P21	37.2	-0.4	-0.3
7	P22	35.2	0.7	1.0
7	P23	38.0	-1.4	-0.9
7	P24	36.3	0.5	0.9
7	P25	36.4	-0.2	0.7
8	P1	38.9	-1.6	-1.3
8	P2	36.2	2.0	3.3
8	P3	35.5	1.8	3.5
8	P4	35.2	1.2	3.6
8	P5	35.7	0.6	0.6
8	P6	36.8	1.5	3.6
8	P7	35.6	0.7	0.8
8	P8	35.6	0.9	0.8
8	P9	35.8	0.8	0.5
8	P10	36.0	1.0	0.9
8	P11	37.3	-0.1	0.1
8	P12	36.7	0.6	0.4
8	P13	36.4	0.5	0.9
8	P14	36.7	0.3	0.2
8	P15	36.4	1.0	2.2
8	P16	47.7	-11.1	-11.1
8	P17	38.8	-1.3	1.1



Project Number: NA		Tracking Code: TC0240-NA-0017			
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA		
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD				Qty to test: 25	
Test Start: 10/07/02		Test Completed: 11/15/02			

8	P18	35.7	-0.1	0.1
8	P19	37.6	-0.4	0.0
8	P20	35.8	2.6	3.2
8	P21	36.0	2.9	0.2
8	P22	36.8	3.0	2.6
8	P23	35.5	1.5	5.7
8	P24	35.9	1.8	4.4
8	P25	35.1	1.9	4.9



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

DATA Continued

GAS TIGHT:

Date	Oct. 07 2002	Oct. 10 2002
Room Temp C	22	21
RH	43%	53%
Initials	TC	TC

mOhm values		Actual	Delta
Board	Position	Initial	Gas Tight
1	P1	18.5	1.0
1	P2	35.5	1.1
1	P3	35.9	-0.2
1	P4	36.4	-0.1
1	P5	35.6	0.7
1	P6	35.5	1.0
1	P7	35.6	0.3
1	P8	35.6	1.3
1	P9	35.3	0.4
1	P10	35.0	0.2
1	P11	36.1	1.8
1	P12	35.5	1.0
1	P13	36.9	0.3
1	P14	36.2	0.9
1	P15	35.6	1.3
1	P16	35.9	0.5
1	P17	35.6	0.4
1	P18	37.1	0.8
1	P19	35.5	1.9
1	P20	35.6	0.6
1	P21	35.9	2.1
1	P22	36.3	0.8
1	P23	38.3	-0.5
1	P24	35.1	0.9
1	P25	35.1	0.4
2	P1	36.4	-8.2
2	P2	35.6	0.5
2	P3	36.0	0.2



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

2	P4	38.6	-1.2
2	P5	36.0	0.4
2	P6	38.8	-1.6
2	P7	35.1	0.6
2	P8	37.4	0.6
2	P9	36.1	0.1
2	P10	37.1	-0.2
2	P11	36.6	2.0
2	P12	35.3	0.9
2	P13	36.6	0.8
2	P14	36.4	1.3
2	P15	36.0	1.1
2	P16	35.5	1.0
2	P17	35.3	1.3
2	P18	34.3	2.0
2	P19	35.6	2.0
2	P20	36.9	-0.2
2	P21	36.9	1.1
2	P22	35.9	1.1
2	P23	35.6	2.0
2	P24	35.6	0.7
2	P25	18.8	8.9
3	P1	36.2	2.3
3	P2	36.2	0.8
3	P3	36.4	0.6
3	P4	36.3	0.4
3	P5	35.9	0.8
3	P6	35.4	1.1
3	P7	36.4	0.6
3	P8	36.2	1.1
3	P9	36.7	1.1
3	P10	35.7	0.5
3	P11	38.4	-0.9
3	P12	36.1	0.3
3	P13	38.3	-0.4
3	P14	36.2	0.8
3	P15	36.2	0.7
3	P16	36.0	-0.1
3	P17	36.1	0.0
3	P18	36.0	0.4
3	P19	37.0	0.4



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC Eng: JT
Part description: FFMD				Qty to test: 25
Test Start: 10/07/02		Test Completed: 11/15/02		

3	P20	35.6	0.2
3	P21	35.3	-0.1
3	P22	36.7	-0.9
3	P23	35.6	1.1
3	P24	36.8	0.5
3	P25	36.2	1.5
4	P1	36.1	0.5
4	P2	36.6	0.0
4	P3	35.4	0.6
4	P4	35.5	0.2
4	P5	35.7	0.4
4	P6	36.2	0.7
4	P7	36.2	0.5
4	P8	35.8	0.1
4	P9	35.7	0.3
4	P10	35.9	0.8
4	P11	35.7	0.8
4	P12	36.5	0.3
4	P13	36.7	-0.3
4	P14	36.2	0.8
4	P15	36.4	0.4
4	P16	36.0	0.8
4	P17	35.9	0.1
4	P18	36.0	0.6
4	P19	36.4	0.9
4	P20	36.0	0.4
4	P21	35.1	0.5
4	P22	36.8	0.7
4	P23	34.9	0.2
4	P24	35.6	-0.1
4	P25	35.6	0.4
5	P1	35.4	0.5
5	P2	35.8	0.2
5	P3	34.9	1.5
5	P4	35.9	-0.1
5	P5	36.4	0.4
5	P6	34.3	2.5
5	P7	35.2	3.7
5	P8	37.4	-0.6
5	P9	35.7	1.0
5	P10	36.9	2.7



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F			Lot #: NA	Tech: TC
Part description: FFMD				Qty to test: 25
Test Start: 10/07/02		Test Completed: 11/15/02		

5	P11	35.3	0.4
5	P12	36.7	-0.4
5	P13	36.5	1.5
5	P14	35.8	1.7
5	P15	35.6	0.5
5	P16	37.8	0.0
5	P17	35.7	0.3
5	P18	35.9	1.7
5	P19	37.7	-2.2
5	P20	35.7	-1.3
5	P21	36.0	2.2
5	P22	35.5	0.9
5	P23	35.8	-0.3
5	P24	35.1	0.7
5	P25	35.6	1.0
6	P1	37.0	1.2
6	P2	36.4	1.0
6	P3	36.4	-0.5
6	P4	35.5	0.6
6	P5	38.0	0.9
6	P6	36.9	1.0
6	P7	37.2	-1.2
6	P8	35.4	0.1
6	P9	36.2	-0.4
6	P10	36.7	-0.4
6	P11	35.6	0.1
6	P12	36.0	0.7
6	P13	36.7	-0.1
6	P14	37.8	0.3
6	P15	36.9	0.7
6	P16	37.5	2.0
6	P17	38.3	0.3
6	P18	36.8	-0.7
6	P19	36.7	-0.2
6	P20	36.1	-0.2
6	P21	36.6	0.3
6	P22	36.0	0.2
6	P23	35.7	1.6
6	P24	35.5	0.4
6	P25	36.8	2.1
7	P1	35.4	0.2



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

7	P2	35.4	0.1
7	P3	35.3	-0.3
7	P4	36.2	-0.3
7	P5	37.4	0.1
7	P6	38.0	-0.4
7	P7	36.2	0.6
7	P8	39.5	0.0
7	P9	35.0	0.2
7	P10	35.4	-0.1
7	P11	34.8	0.4
7	P12	37.3	-0.2
7	P13	36.1	-0.2
7	P14	35.8	0.1
7	P15	37.6	-0.6
7	P16	36.8	-0.5
7	P17	35.4	0.0
7	P18	40.2	-0.7
7	P19	38.1	0.1
7	P20	38.0	-1.8
7	P21	36.3	0.7
7	P22	34.9	0.0
7	P23	36.2	-0.6
7	P24	38.0	-1.2
7	P25	35.3	0.6
8	P1	38.5	0.1
8	P2	36.9	-0.4
8	P3	36.0	1.7
8	P4	38.7	1.0
8	P5	36.0	0.4
8	P6	36.2	1.1
8	P7	36.0	1.2
8	P8	36.0	1.6
8	P9	35.8	0.3
8	P10	36.1	1.9
8	P11	35.3	0.2
8	P12	35.9	0.5
8	P13	35.8	0.7
8	P14	36.3	0.7
8	P15	36.0	0.5
8	P16	37.1	1.5
8	P17	37.8	3.5



Project Number: NA		Tracking Code: TC0240-NA-0017	
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC Eng: JT
Part description: FFMD			Qty to test: 25
Test Start: 10/07/02	Test Completed: 11/15/02		

8	P18	35.0	0.0
8	P19	38.6	2.0
8	P20	35.9	1.4
8	P21	36.0	0.5
8	P22	36.7	1.6
8	P23	35.7	1.8
8	P24	36.4	0.9
8	P25	35.8	0.5



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD			Qty to test: 25	
Test Start: 10/07/02	Test Completed: 11/15/02			

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: THL-01

Description: Temperature/Humidity Chart Recorder

Manufacturer: Dickson

Model: THDX

Serial #: 9316255

Accuracy: Temp: +/- 1C; Humidity: +/-2% RH (0 - 60%) +/- 3% RH (61 - 95%).

... Last Cal: 7/15/02, Next Cal: 7/15/03

Equipment #: MO-01

Description: Micro-Ohmmeter

Manufacturer: Keithley

Model: 580

Serial #: 0772740

Accuracy: See Manual

... Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: MO-03

Description: Multimeter /Data Acquisition System

Manufacturer: Keithley

Model: 2700

Serial #: 0791975

Accuracy: See Manual

... Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: OV-03

Description: Cascade Tek Forced Air Oven

Manufacturer: Cascade Tek

Model: TFO-5

Serial #: 0500100

Accuracy: Temp. Stability: +/- .1C/C change in ambient

... Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: THC-01

Description: Temperature/Humidity Chamber

Manufacturer: Thermotron

Model: SM-8-7800

Serial #: 30676

Accuracy: See Manual

... Last Cal: 5/13/02, Next Cal: 5/13/03



Project Number: NA		Tracking Code: TC0240-NA-0017		
Requested by: Doug McCartin		Date: 10/4/02	Product Rev: NA	
Part #: FFMD-25-D-2-01-F		Lot #: NA	Tech: TC	Eng: JT
Part description: FFMD			Qty to test: 25	
Test Start: 10/07/02	Test Completed: 11/15/02			

Equipment #: HPM-01

Description: Hipot Megommeter

Manufacturer: Hipotronics

Model: H306B-A

Serial #: M9905004

Accuracy: 2 % Full Scale Accuracy

... Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: PS-01

Description: System Power Supply

Manufacturer: Hewlett Packard

Model: HP 6033A

Serial #: (HP) 3329A-07330

Accuracy: See Manual See Manual

... Last Cal: 10/16/02, Next Cal: 10/31/03

Equipment #: MO-02

Description: Multimeter /Data Acquisition System

Manufacturer: Keithley

Model: 2700

Serial #: 0780546

Accuracy: See Manual

... Last Cal: 6/25/02, Next Cal: 6/25/03

Equipment #: TC090601-103/104

Description: IC Thermocouple-103

Manufacturer: Samtec

Serial #: TC090601-103/104

Accuracy: +/- 1 degree C