



**KEMA-Powertest, LLC**

*Test Report # 12269-C, Revision #1*

**Equipment Tested:**

3700 A Non-Segregated Bus Duct 3P4W/Full Neutral

**Tested For:**

Temperature Rise

November 14-16, 2012



**REPORT OF PERFORMANCE NUMBER: 12269-C, Revision #1**

CLIENT: AZZ/CALVERT COMPANY, RICHLAND, MS

EQUIPMENT TESTED: 3700 A NON-SEGREGATED BUS DUCT 3P4W/FULL NEUTRAL

MANUFACTURER'S RATINGS:

|                        |         |                    |
|------------------------|---------|--------------------|
| Voltage:               | 635     | V                  |
| Continuous Current:    | 3700    | A                  |
| Short-Circuit Current: | 65      | kA <sub>sym</sub>  |
| Short Circuit Current: | 100     | kA <sub>asym</sub> |
| Frequency:             | 50      | Hz                 |
| Number of Phases:      | 3P4W/FN |                    |

DATES OF TEST: November 14-16, 2012

TESTED FOR: Temperature Rise

The tests have been carried out in accordance with the client's instructions.

This report consists of 29 pages, and contains the results of tests performed at the KEMA-Powertest Laboratory on the above noted equipment. Publication or reproduction of the contents of this report in any form other than a complete copy is not permitted without written approval of KEMA-Powertest.

Measurement uncertainty can be verified by reviewing the instrument calibration records. The instruments used are calibrated on a regular basis and are traceable to the National Institute of Standards and Technology.

The results apply only to the specific devices tested and are recorded on the enclosed tables, oscillograms, photographs, etc. A table of contents is included on Page 2.

Richard J. Cabbage  
Manager, Test Operations

February 18, 2013  
Date



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TESTS WITNESSED BY:

STEVE POWELL - AZZ/CALVERT COMPANY

REPORT PREPARED BY:

JASON SOUCHAK



## THERMAL SUMMARY

### A. Discussion

The client submitted one 3700 A Non-Segregated Bus Duct, in good condition, to be subjected to temperature rise test in accordance with client's instructions. The test sample is rated 635 V, 3700 A  $I_{CONT}$ , 65 kA  $I_{SC}$ , 50Hz, and three phase.

### B. Test Requirements

The temperature rise (continuous current) test is to consist of rated continuous 60 Hz current being circulated through the 3700 A Non-Segregated Bus Duct until temperature stabilization.

Reference standard(s): IEEE C37.23-2003, IEC 61439-6

### C. Test Results

The temperature rise tests for the 3700 A Non-Segregated Bus Duct were performed in accordance with the test standards mentioned above and the client's instructions.

Details are reported in the AC Thermal Test Forms on pages 10-11 of this report.

The results of the temperature rise test are summarized in the Thermal Summary Tables on pages 5-6.

The thermocouple locations are identified on the Thermocouple Location Sheets on pages 8-9 of this report.

This report will be forwarded to the client for evaluation.



### REQUEST FOR LABORATORY TESTS

Requested By: Steve Powell Test No.: 12269-C

Company: AZZ/Calvert Company Quote No.: Q12407

Required Test Date: November 14 - 15, 2012 Request Date: 11/12/2012

Equipment To Be Tested: Non-Segregated Phase Bus

Rated: 440V, 65kA Isc, 3700A Icont, 3φ, 50Hz

Type Of Tests: Continuous Current

Test Standards: IEEE Std C37.23 – 2003, IEC 61439-6

Test Program:

TEST PROCEDURE ATTACHED

UL THIRD PARTY DATA PROGRAM

| PHASE | Frequency (Hz) | VOLTAGE (kV) | SYM CURRENT (kA) |
|-------|----------------|--------------|------------------|
| 3     | 60             | Low          | 3.7              |

NOTES:

1. Confirm levels and duration with client.

MEASUREMENTS:

|   |                                      |  |
|---|--------------------------------------|--|
| <input checked="" type="checkbox"/> TEST CURRENT            | <input type="checkbox"/> L-N VOLTAGE | <input type="checkbox"/> POWER                   |
| <input checked="" type="checkbox"/> TEMPERATURES            | <input type="checkbox"/> L-L VOLTAGE | <input checked="" type="checkbox"/> OBSERVATIONS |
| <input checked="" type="checkbox"/> RESISTANCE MEASUREMENTS | <input type="checkbox"/>             | <input type="checkbox"/>                         |
| <input type="checkbox"/>                                    | <input type="checkbox"/>             | <input type="checkbox"/>                         |

Witness(s): Calvert Company Representatives.

Copies of Test Reports To: Steve Powell



**THERMAL SUMMARY TABLE**

**Run #1**

**12269-C**

**Date and Time of Stability:**

11/14/2012

8:35:20 PM

**Average Air Ambient =**

18°C

| Thermocouple Number | Total Temperature (°C) | Temperature Rise (°C) |
|---------------------|------------------------|-----------------------|
| 1                   | 17.7                   | -                     |
| 2                   | 18.2                   | -                     |
| 3                   | 18.2                   | -                     |
| 4                   | 28.0                   | 10.0                  |
| 5                   | 31.0                   | 13.0                  |
| 6                   | 29.6                   | 11.6                  |
| 7                   | 37.9                   | 19.9                  |
| 8                   | 40.5                   | 22.5                  |
| 9                   | 38.5                   | 20.5                  |
| 10                  | 41.9                   | 23.9                  |
| 11                  | 43.9                   | 25.9                  |
| 12                  | 42.8                   | 24.8                  |
| 13                  | 39.9                   | 21.9                  |
| 14                  | 41.5                   | 23.5                  |
| 15                  | 40.0                   | 22.0                  |
| 16                  | 43.7                   | 25.7                  |
| 17                  | 46.1                   | 28.1                  |
| 18                  | 45.3                   | 27.3                  |
| 19                  | 42.8                   | 24.8                  |
| 20                  | 44.1                   | 26.1                  |
| 21                  | 44.7                   | 26.7                  |
| 22                  | 44.5                   | 26.5                  |
| 23                  | 46.1                   | 28.1                  |
| 24                  | 45.2                   | 27.2                  |



**THERMAL SUMMARY TABLE**

**Run #2**

**12269-C**

**Date and Time of Stability:**

11/16/2012

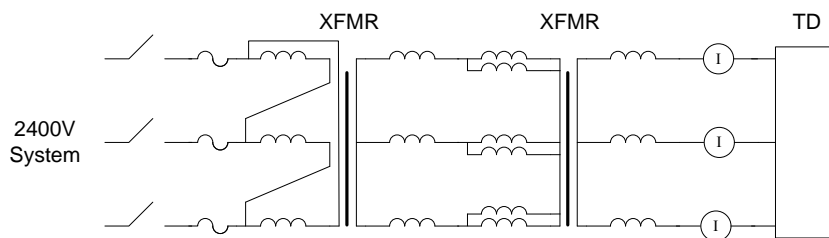
3:33:24 PM

**Average Air Ambient =**

21.3°C

| Thermocouple Number | Total Temperature (°C) | Temperature Rise (°C) |
|---------------------|------------------------|-----------------------|
| 1                   | 20.7                   | -                     |
| 2                   | 20.9                   | -                     |
| 3                   | 22.3                   | -                     |
| 4                   | 32.6                   | 11.3                  |
| 5                   | 35.9                   | 14.6                  |
| 6                   | 34.3                   | 13.0                  |
| 7                   | 56.6                   | 35.3                  |
| 8                   | 57.0                   | 35.7                  |
| 9                   | 55.5                   | 34.2                  |
| 10                  | 56.1                   | 34.8                  |
| 11                  | 58.3                   | 37.0                  |
| 12                  | 56.3                   | 35.0                  |
| 13                  | 56.9                   | 35.6                  |
| 14                  | 58.8                   | 37.5                  |
| 15                  | 57.1                   | 35.8                  |

### CIRCUIT SCHEMATIC LAB2010



TD    Test Device  
I     Current Measurement





**THERMOCOUPLE LOCATION SHEET**  
12269-C  
Run #1

| <b>Thermocouple No.</b> | <b>Thermocouple Location</b> |
|-------------------------|------------------------------|
| 1                       | Ambient Front                |
| 2                       | Ambient Center               |
| 3                       | Ambient Rear                 |
| 4                       | Skin Front                   |
| 5                       | Skin Center                  |
| 6                       | Skin Rear                    |
| 7                       | Phase A Front                |
| 8                       | Phase B Front                |
| 9                       | Phase C Front                |
| 10                      | Phase A Center               |
| 11                      | Phase B Center               |
| 12                      | Phase C Center               |
| 13                      | Phase A Rear                 |
| 14                      | Phase B Rear                 |
| 15                      | Phase C Rear                 |
| 16                      | Phase A Front Upper Bar      |
| 17                      | Phase B Front Upper Bar      |
| 18                      | Phase C Front Upper Bar      |
| 19                      | Phase A Center Upper Bar     |
| 20                      | Phase B Center Upper Bar     |
| 21                      | Phase C Center Upper Bar     |
| 22                      | Phase A Rear Upper Bar       |
| 23                      | Phase B Rear Upper Bar       |
| 24                      | Phase C Rear Upper Bar       |



## TERMOCOUPLE LOCATION SHEET

12269-C

Run #2

| Thermocouple No. | Thermocouple Location    |
|------------------|--------------------------|
| 1                | Ambient Front            |
| 2                | Ambient Center           |
| 3                | Ambient Rear             |
| 4                | Skin Front               |
| 5                | Skin Center              |
| 6                | Skin Rear                |
| 7                | Phase A Front Of Splice  |
| 8                | Phase B Front Of Splice  |
| 9                | Phase C Front Of Splice  |
| 10               | Phase A Center Of Splice |
| 11               | Phase B Center Of Splice |
| 12               | Phase C Center Of Splice |
| 13               | Phase A Rear Of Splice   |
| 14               | Phase B Rear Of Splice   |
| 15               | Phase C Rear Of Splice   |



AC THERMAL TEST FORM  
RUN #1

Test Number: 12269-C Date: 11/14/2012

Test Device: Non-Segregated Phase Bus Dust

Test Observers: Steve Powell (AZZ/Calvert)

Tester: J. Souchak, B. Swartz, J. Musembi, T. Le

Location Of Test Setup: Thermal Test Area:      Ship/Rec: X Other:     

Run Number: 1

Number Of Phases: 3 Frequency (Hz): 60

KEMA Source: Uptegraf:      Tech-Tran: X Other:     

Tap Position of KEMA Source: A Phase: 240 B Phase: 120 C Phase: 240

Thermal Supply Transformers: 3kA Transformers:      10kA Transformers: X Other:     

Thermal Supply Configuration: Primary: Parallel Wye Secondary: Parallel Wye

Cables Per Phase: 4 Size: 1100 MCM Length: 8'

Line Side Extension Cables / Phase: - Size: - Length: -

Load Side Extension Bus Per Phase: - Size: - Length: -

Shorting Bar Dimensions: 1 Size: 1/2" x 12" Length: 9"wide, 7" deep "U"

Comments: 1 "U" shaped shorting bar between A-B and B-C. The upper and lower bus was  
Connected at the line side by a large plate (18.5"x12"x.5") each phase. The shorted side upper  
Terminals were connected to the lower terminals by a piece of copper (4"x12"x.5"), each phase

Ratio Of CT's: 12500:5 Shunt Value: 1 Ω Across Secondary Of CT's

Desired Current: 3700 A

Voltage Across Shunt: A Phase: 1.50 B Phase: 1.50 C Phase: 1.50

Actual Current: A Phase: 3750A B Phase: 3750A C Phase: 3750A

Date And Time Current On: 11/14/2012 3:10 PM

Date And Time Current Off: 11/15/2012 7:31 AM

Comments:

- 14 November 2012: 1) KEMA personnel installed thermocouples.
- 2) VS checked current at 7:40 PM, A: 1.47V, B:1.47V, C:1.47V. Adjusted back to 1.50 V
- 15 November 2012 3) Checked current at 7:10 AM, A:1.50V, B:1.50V, C:1.50V



### AC THERMAL TEST FORM RUN #2

Test Number: 12269-C Date: 11/16/2012

Test Device: Non-Segregated Phase Bus Dust

Test Observers: Steve Powell (AZZ/Calvert)

Tester: J. Souchak, B. Swartz, J. Musembi, T. Le

Location Of Test Setup: Thermal Test Area:      Ship/Rec: X Other:     

Run Number: 2

Number Of Phases: 3 Frequency (Hz): 60

KEMA Source: Uptegraf:      Tech-Tran: X Other:     

Tap Position of KEMA Source: A Phase: 240 B Phase: 120 C Phase: 240

Thermal Supply Transformers: 3kA Transformers:      10kA Transformers: X Other:     

Thermal Supply Configuration: Primary: Parallel Wye Secondary: Parallel Wye

Cables Per Phase: 4 Size: 1100 MCM Length: 8'

Line Side Extension Cables / Phase: - Size: - Length: -

Load Side Extension Bus Per Phase: - Size: - Length: -

Shorting Bar Dimensions: 1 Size: 1/2" x 12" Length: 9"wide, 7" deep "U"

Comments: 1 "U" shaped shorting bar between A-B and B-C. The upper and lower bus was  
Connected at the line side by a large plate (18.5"x12"x.5") each phase. The shorted side upper  
Terminals were connected to the lower terminals by a piece of copper (4"x12"x.5"), each phase

Ratio Of CT's: 12500:5 Shunt Value: 1 Ω Across Secondary Of CT's

Desired Current: 3700 A

Voltage Across Shunt: A Phase: 1.50 B Phase: 1.50 C Phase: 1.50

Actual Current: A Phase: 3750A B Phase: 3750A C Phase: 3750A

Date And Time Current On: 11/16/2012 8:34 AM

Date And Time Current Off: 11/16/2012 3:33 PM

#### Comments:

- 16 November 2012: 1) KEMA personnel installed thermocouples.
- 2) Current at 3:00 was 1.49 V on A,B and C phases = 3725 A.

# KEMA-Powertest, Inc.

## Instrumentation Information Sheet

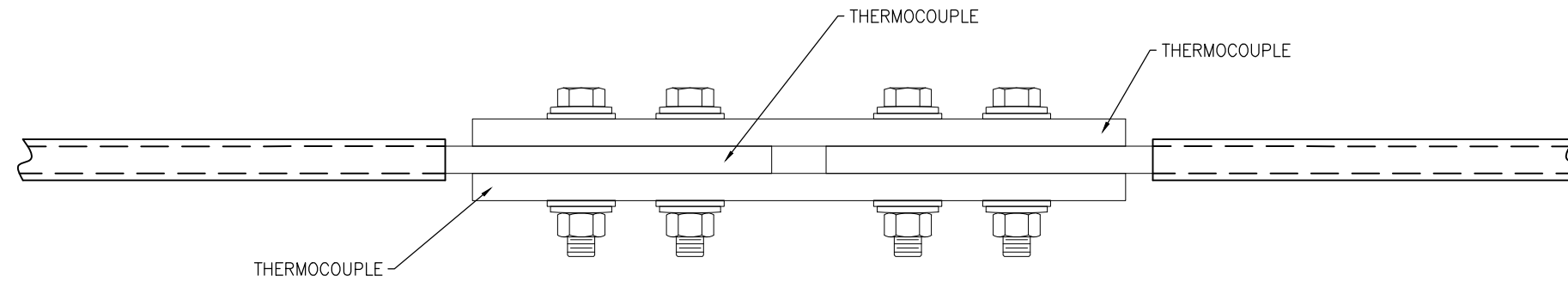
**TEST NO:** 12269-C

**DATE:** 11/19/2012

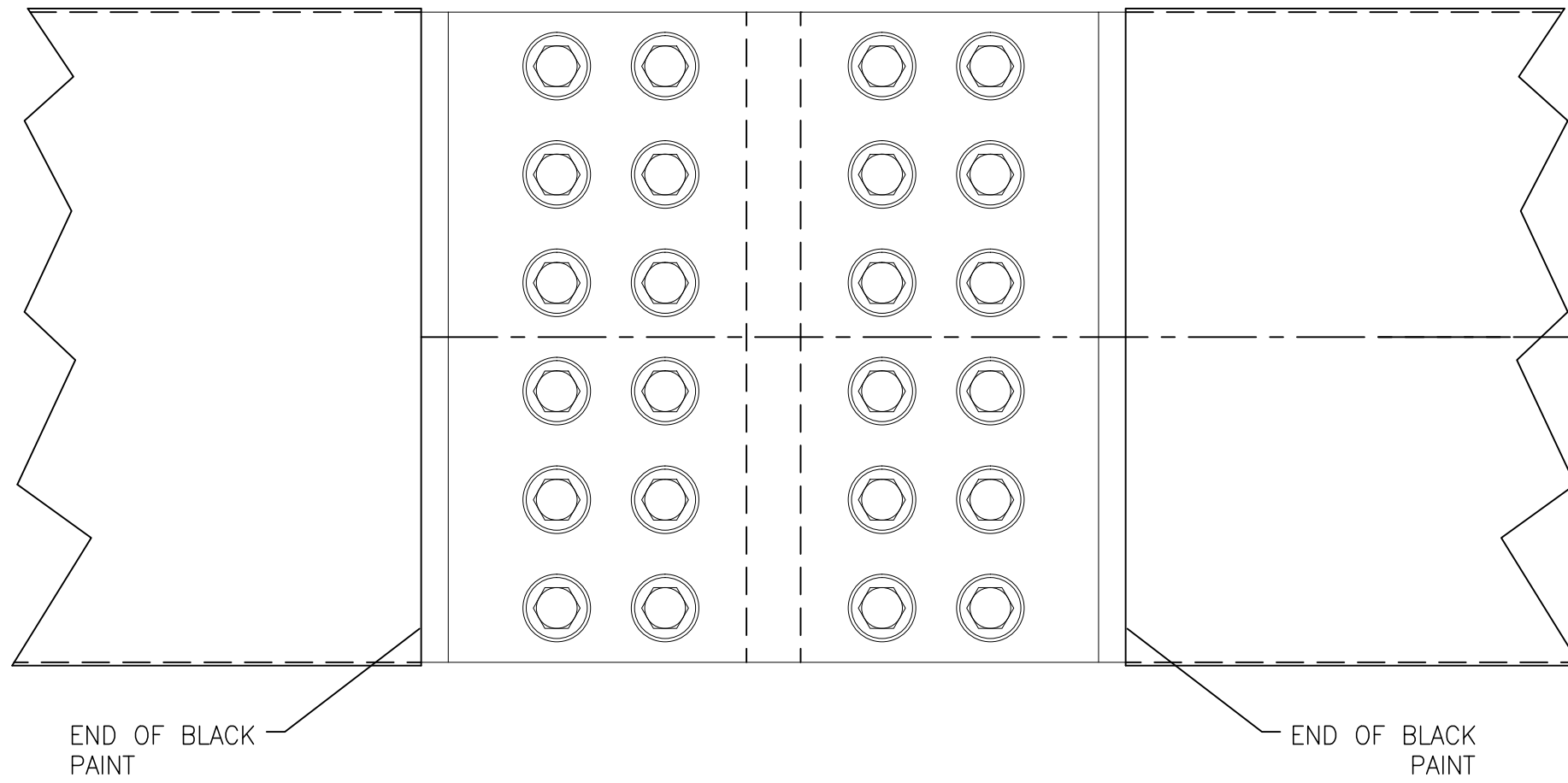
**TEST DEVICE:** Calvert Non-Segregated Bus Duct 3700 A

**TESTED BY:** J. Souchak, B. Swartz, T. Le, J. Musembi

| CODE# | TYPE        | MANUFACTURER | MODEL#     | SERIAL#   | CALIBRATION |           |
|-------|-------------|--------------|------------|-----------|-------------|-----------|
|       |             |              |            |           | LAST        | DUE       |
| TEM47 | DATA LOGGER | YOKOGAWA     | DU200-11   | 732070    | 10/25/2012  | 5/13/2013 |
| TEM48 | DATA LOGGER | YOKOGAWA     | DU200-11   | 91HB40535 | 10/25/2012  | 5/13/2013 |
| TEM44 | DATA LOGGER | YOKOGAWA     | DU200-11   | 587642    | 10/25/2012  | 5/13/2013 |
| CTX08 | C.T.        | ITE          | TR         | 1928      | 9/30/2011   | 9/30/2013 |
| CTX09 | C.T.        | ITE          | TR         | 1114      | 9/30/2011   | 9/30/2013 |
| CTX10 | C.T.        | ITE          | TR         | 1115      | 9/30/2011   | 9/30/2013 |
| CTS56 | C.T. SHUNT  | DALE         | RH-50 1OHM | N/A       | 5/18/2012   | 12/4/2012 |
| CTS20 | C.T. SHUNT  | DALE         | NH-50 1OHM | N/A       | 5/18/2012   | 12/4/2012 |
| CTS21 | C.T. SHUNT  | DALE         | NH-50 1OHM | N/A       | 5/18/2012   | 12/4/2012 |
| MUL84 | DMM         | WAVETEK      | 85XT       | 980904012 | 10/23/2012  | 5/11/2013 |
| MUL86 | DMM         | WAVETEK      | 85XT       | 980904021 | 10/23/2012  | 5/11/2013 |
| MUL79 | DMM         | WAVETEK      | 85XT       | 980206885 | 10/23/2012  | 5/11/2013 |




PLAN VIEW

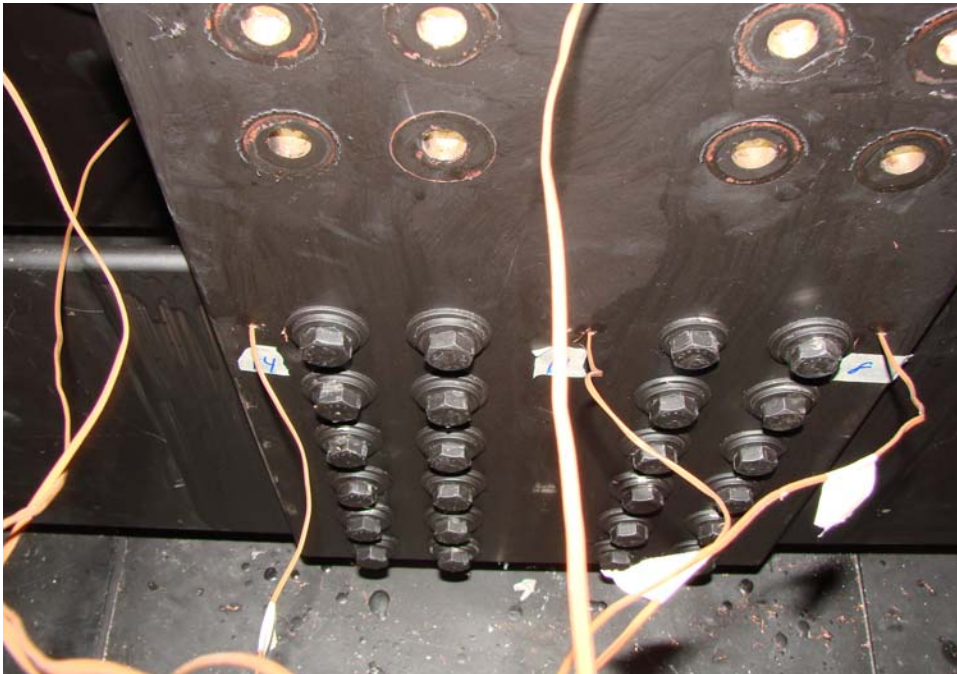
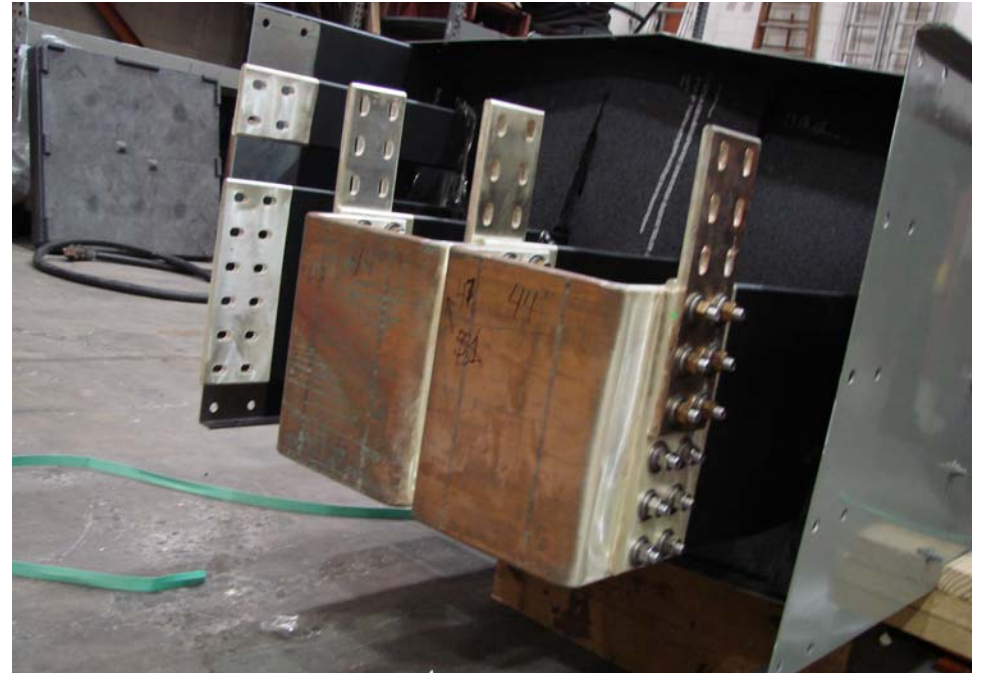


ELEVATION VIEW

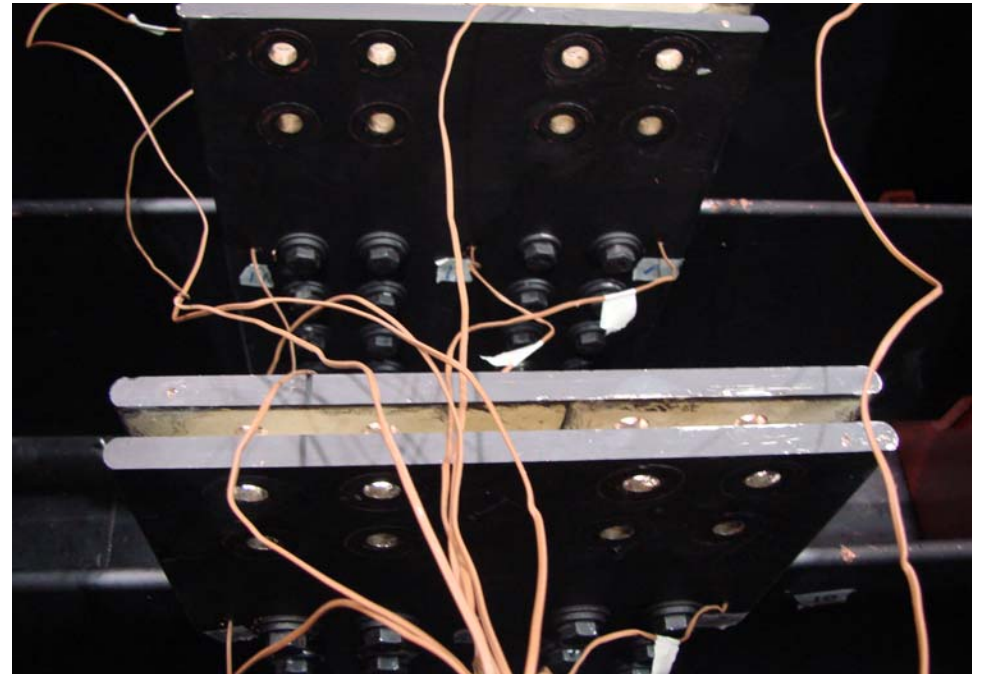
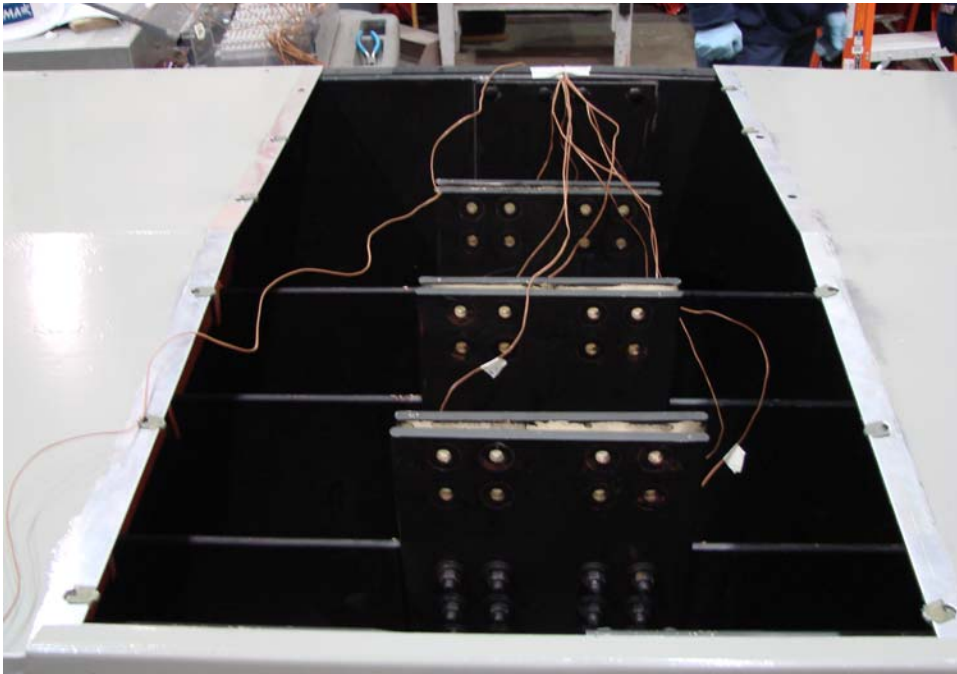
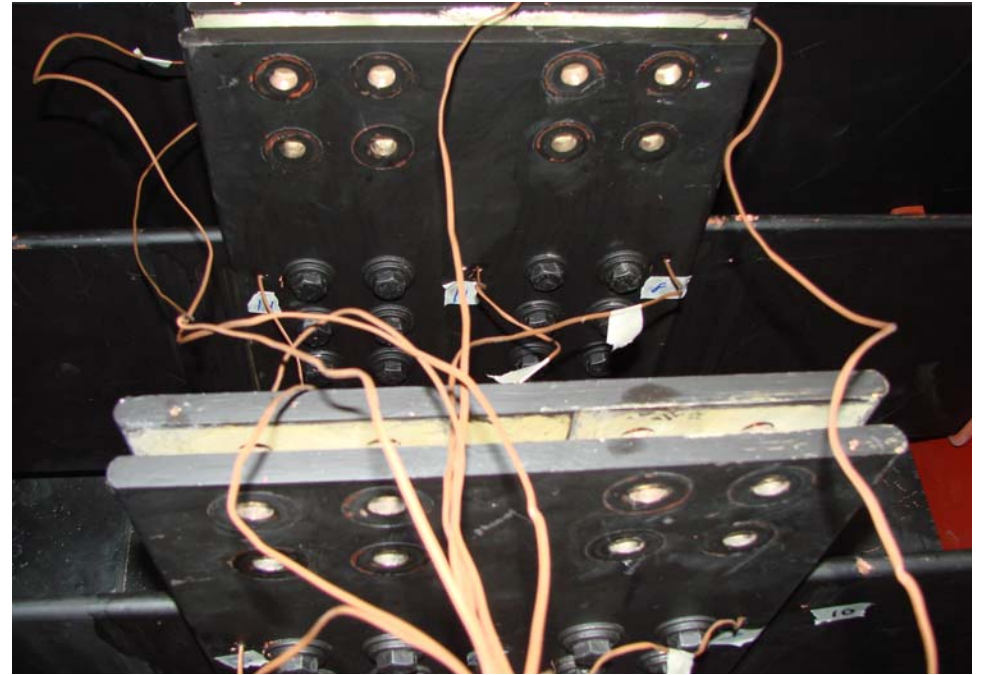
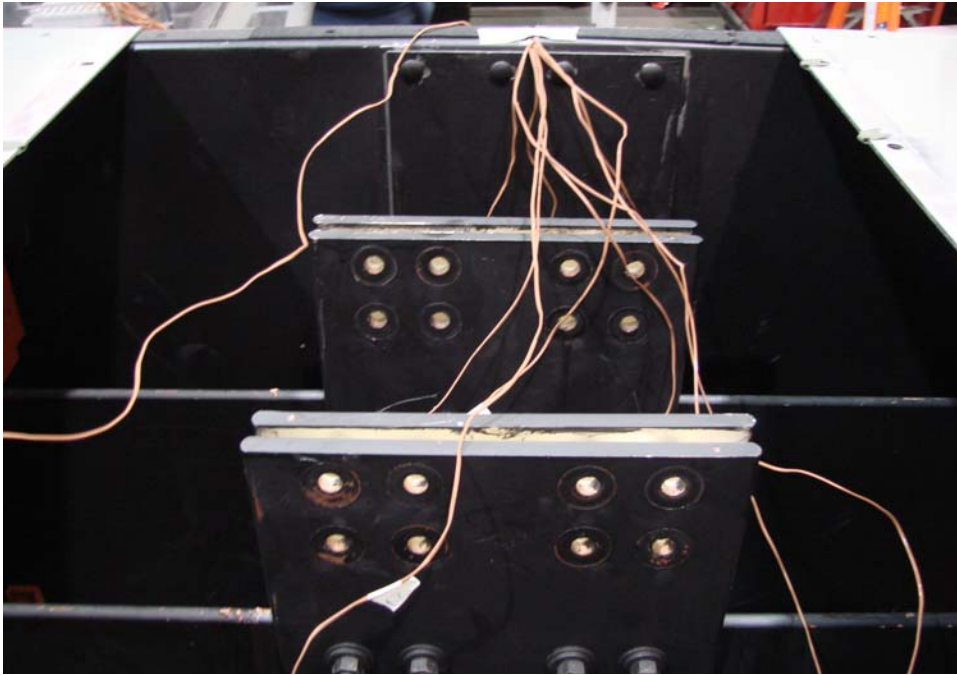
THERMOCOUPLE LOCATIONS ON PHASES "A, B & C"

THERMOCOUPLES SHOULD ALSO BE PLACED ON ENCLOSURE COVER  
(FRONT, CENTER AND BACK) AND AT AMBIENT LOCATIONS

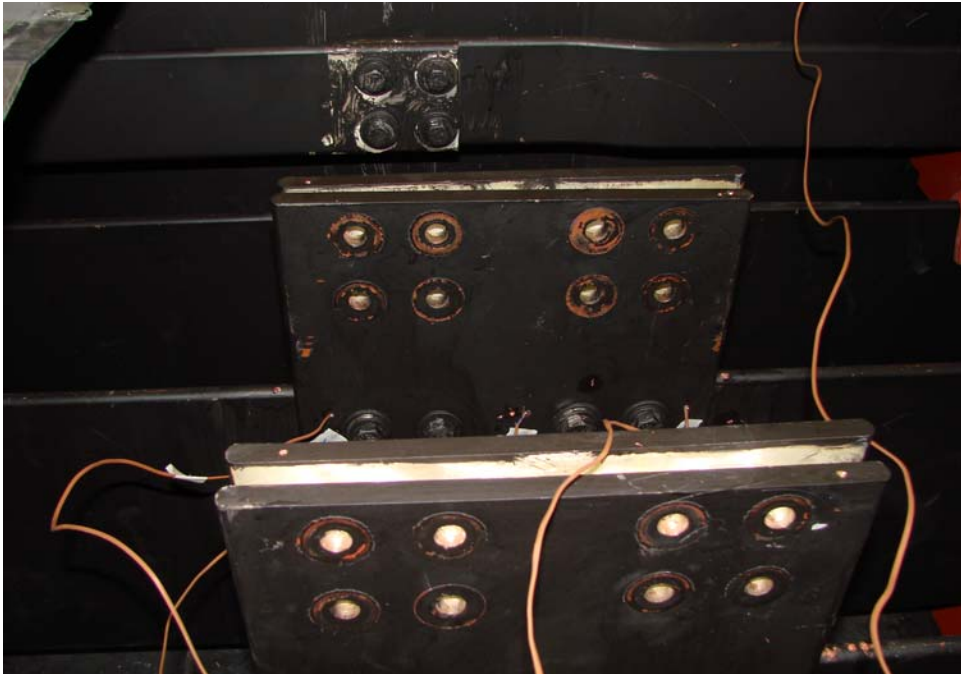
|   |         |   |                                  |          |
|---|---------|---|----------------------------------|----------|
| Subcontractor/Supplier  |         | Transmittal No. / Previous Transmittal No. / MEW Approvals          |                                  | Orig.-PC |
|  |         | <small>JACKSON, MS 39218<br/>(601) 338-9199<br/>WWW.AZZ.COM</small> |                                  |          |
| Project   |         |   |                                  |          |
| Drawn   | Date    | Name  | Scale                            | Type     |
| 9/22/12   | 9/22/12 | KG  | NTS                              | A3       |
| Coord.  | MMS     |   | Title                            |          |
| Checked   | JNS     |   | 635V, 3700A<br>SPLICE ASSEMBLY   |          |
| Dept.   | DC      |   | Reg. No.<br>Index / Rev. Version |          |
|   |         |   | 01                               |          |
|   |         |   | Page-No.                         |          |



REPORT # 12269-C  
Photographs - Without Upper Bus







## TEMPERATURE CHART(S)

| Test Numb | 12269-C     | Run        | 1       | Amb        | 1       | 2          | 3       |            |         |         |         |         |         |         |
|-----------|-------------|------------|---------|------------|---------|------------|---------|------------|---------|---------|---------|---------|---------|---------|
| Channel#  |             |            |         | 1          | 1       | 2          | 2       | 3          | 3       | 4       | 4       | 5       | 5       | 6       |
| Record#   | Time        | Date       | Avg Amb | Ambient #1 | Rise #1 | Ambient #2 | Rise #2 | Ambient #3 | Rise #3 | Data #1 | Rise #1 | Data #2 | Rise #2 | Data #3 |
| 1         | 3:05:28 PM  | 11/14/2012 | 17.0    | 16.3       | -0.7    | 17.7       | 0.7     | 16.9       | -0.1    | 18.8    | 1.8     | 18.8    | 1.8     | 19.2    |
| 3         | 3:35:25 PM  | 11/14/2012 | 17.5    | 17.2       | -0.3    | 17.5       | 0.0     | 17.7       | 0.2     | 22.6    | 5.1     | 23.3    | 5.8     | 22.7    |
| 4         | 4:05:24 PM  | 11/14/2012 | 17.8    | 17.5       | -0.3    | 17.8       | 0.0     | 18.1       | 0.3     | 24.6    | 6.8     | 24.9    | 7.1     | 24.7    |
| 5         | 4:35:24 PM  | 11/14/2012 | 17.4    | 17.3       | -0.1    | 17.3       | -0.1    | 17.5       | 0.1     | 25.7    | 8.3     | 25.7    | 8.3     | 25.7    |
| 6         | 5:05:23 PM  | 11/14/2012 | 18.2    | 18.0       | -0.2    | 18.2       | 0.0     | 18.4       | 0.2     | 26.4    | 8.2     | 27.3    | 9.1     | 27.2    |
| 7         | 5:35:23 PM  | 11/14/2012 | 18.1    | 17.8       | -0.3    | 18.2       | 0.1     | 18.2       | 0.1     | 26.7    | 8.6     | 28.1    | 10.0    | 27.9    |
| 8         | 6:05:22 PM  | 11/14/2012 | 17.9    | 17.6       | -0.3    | 18.0       | 0.1     | 18.0       | 0.1     | 26.9    | 9.0     | 28.8    | 10.9    | 28.4    |
| 9         | 6:35:22 PM  | 11/14/2012 | 17.5    | 17.3       | -0.2    | 17.7       | 0.2     | 17.6       | 0.1     | 27.0    | 9.5     | 29.2    | 11.7    | 28.7    |
| 10        | 7:05:21 PM  | 11/14/2012 | 17.2    | 17.0       | -0.2    | 17.4       | 0.2     | 17.3       | 0.1     | 27.1    | 9.9     | 29.6    | 12.4    | 28.9    |
| 11        | 7:35:21 PM  | 11/14/2012 | 16.9    | 16.7       | -0.2    | 17.1       | 0.2     | 17.0       | 0.1     | 26.8    | 9.9     | 29.7    | 12.8    | 29.0    |
| 12        | 8:05:20 PM  | 11/14/2012 | 17.6    | 17.3       | -0.3    | 17.7       | 0.1     | 17.8       | 0.2     | 27.6    | 10.0    | 30.6    | 13.0    | 29.4    |
| 13        | 8:35:20 PM  | 11/14/2012 | 18.0    | 17.7       | -0.3    | 18.2       | 0.2     | 18.2       | 0.2     | 28.0    | 10.0    | 31.0    | 13.0    | 29.6    |
| 14        | 9:05:29 PM  | 11/14/2012 | 18.0    | 17.7       | -0.3    | 18.1       | 0.1     | 18.1       | 0.1     | 28.0    | 10.0    | 31.2    | 13.2    | 29.8    |
| 15        | 9:35:29 PM  | 11/14/2012 | 17.9    | 17.6       | -0.3    | 18.1       | 0.2     | 18.1       | 0.2     | 28.1    | 10.2    | 31.3    | 13.4    | 29.9    |
| 16        | 10:05:28 PM | 11/14/2012 | 18.8    | 18.5       | -0.3    | 18.9       | 0.1     | 18.9       | 0.1     | 29.1    | 10.3    | 31.9    | 13.1    | 30.2    |
| 17        | 10:35:28 PM | 11/14/2012 | 19.8    | 19.5       | -0.3    | 19.9       | 0.1     | 19.9       | 0.1     | 29.8    | 10.0    | 32.3    | 12.5    | 30.7    |
| 18        | 11:05:27 PM | 11/14/2012 | 19.9    | 19.6       | -0.3    | 20.2       | 0.3     | 20.0       | 0.1     | 29.9    | 10.0    | 32.8    | 12.9    | 31.1    |
| 19        | 11:35:27 PM | 11/14/2012 | 20.0    | 19.7       | -0.3    | 20.3       | 0.3     | 20.0       | 0.0     | 30.1    | 10.1    | 33.0    | 13.0    | 31.4    |
| 20        | 12:05:27 AM | 11/15/2012 | 19.9    | 19.7       | -0.2    | 20.3       | 0.4     | 19.8       | -0.1    | 30.3    | 10.4    | 33.3    | 13.4    | 31.4    |
| 21        | 12:35:26 AM | 11/15/2012 | 20.0    | 19.8       | -0.2    | 20.3       | 0.3     | 19.9       | -0.1    | 30.5    | 10.5    | 33.5    | 13.5    | 31.6    |
| 22        | 1:05:26 AM  | 11/15/2012 | 20.0    | 20.0       | 0.0     | 20.3       | 0.3     | 19.7       | -0.3    | 30.9    | 10.9    | 33.5    | 13.5    | 31.7    |
| 23        | 1:35:25 AM  | 11/15/2012 | 20.2    | 20.3       | 0.1     | 20.5       | 0.3     | 19.8       | -0.4    | 31.4    | 11.2    | 33.6    | 13.4    | 31.8    |
| 24        | 2:05:25 AM  | 11/15/2012 | 20.2    | 20.3       | 0.1     | 20.6       | 0.4     | 19.8       | -0.4    | 31.6    | 11.4    | 33.6    | 13.4    | 31.9    |
| 25        | 2:35:24 AM  | 11/15/2012 | 20.3    | 20.4       | 0.1     | 20.6       | 0.3     | 19.8       | -0.5    | 31.6    | 11.3    | 33.8    | 13.5    | 31.8    |
| 26        | 3:05:24 AM  | 11/15/2012 | 20.2    | 20.3       | 0.1     | 20.6       | 0.4     | 19.8       | -0.4    | 31.8    | 11.6    | 33.7    | 13.5    | 31.9    |
| 27        | 3:35:23 AM  | 11/15/2012 | 20.2    | 20.3       | 0.1     | 20.7       | 0.5     | 19.7       | -0.5    | 31.9    | 11.7    | 33.8    | 13.6    | 31.9    |
| 28        | 4:05:23 AM  | 11/15/2012 | 20.3    | 20.3       | 0.0     | 20.7       | 0.4     | 19.8       | -0.5    | 31.8    | 11.5    | 33.8    | 13.5    | 32.0    |
| 29        | 4:35:22 AM  | 11/15/2012 | 20.3    | 20.4       | 0.1     | 20.8       | 0.5     | 19.8       | -0.5    | 31.9    | 11.6    | 33.9    | 13.6    | 32.0    |
| 30        | 5:05:22 AM  | 11/15/2012 | 20.3    | 20.4       | 0.1     | 20.7       | 0.4     | 19.8       | -0.5    | 31.9    | 11.6    | 33.9    | 13.6    | 31.9    |
| 31        | 5:35:21 AM  | 11/15/2012 | 20.4    | 20.5       | 0.1     | 20.8       | 0.4     | 19.8       | -0.6    | 32.1    | 11.7    | 34.0    | 13.6    | 32.1    |

## TEMPERATURE CHART(S)

| Test Numb | 12269-C    | Run        | 1       | Amb        | 1       | 2          | 3       |            |         |         |         |         |         |         |
|-----------|------------|------------|---------|------------|---------|------------|---------|------------|---------|---------|---------|---------|---------|---------|
| Channel#  |            |            |         | 1          | 1       | 2          | 2       | 3          | 3       | 4       | 4       | 5       | 5       | 6       |
| Record#   | Time       | Date       | Avg Amb | Ambient #1 | Rise #1 | Ambient #2 | Rise #2 | Ambient #3 | Rise #3 | Data #1 | Rise #1 | Data #2 | Rise #2 | Data #3 |
| 32        | 6:05:31 AM | 11/15/2012 | 20.5    | 20.6       | 0.1     | 20.9       | 0.4     | 20.0       | -0.5    | 32.2    | 11.7    | 34.1    | 13.6    | 32.3    |
| 33        | 6:35:31 AM | 11/15/2012 | 20.2    | 20.7       | 0.5     | 20.3       | 0.1     | 19.7       | -0.5    | 32.2    | 12.0    | 34.3    | 14.1    | 31.9    |
| 34        | 7:05:31 AM | 11/15/2012 | 20.0    | 20.6       | 0.6     | 19.9       | -0.1    | 19.4       | -0.6    | 32.2    | 12.2    | 34.2    | 14.2    | 31.7    |
| 35        | 7:36:30 AM | 11/15/2012 | 20.3    | 20.7       | 0.4     | 19.9       | -0.4    | 20.3       | 0.0     | 29.6    | 9.3     | 29.9    | 9.6     | 29.8    |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperature of any monitored point is substantially constant. (Three successive readings at not less than 30 min intervals of hottest-spo

The interval between readings for this test was 30 Min

Test Numb 12269-C Run 1.0

| TC Types: | Ambient #1 | Rise #1 | Ambient #2 | Rise #2 | Ambient #3 | Rise #3 | Data #1 | Rise #1 | Data #2 | Rise #2 | Data #3 |
|-----------|------------|---------|------------|---------|------------|---------|---------|---------|---------|---------|---------|
|           | T          |         | T          |         | T          |         | T       |         | T       |         | T       |

## TEMPERATURE CHART(S)

| Test Numb 12269-C |             | Run        |         |         |         |         |         |         |         |         |         |         |         |         |         |
|-------------------|-------------|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Channel#          |             | 6          | 7       | 7       | 8       | 8       | 9       | 9       | 10      | 10      | 11      | 11      | 12      | 12      |         |
| Record#           | Time        | Date       | Rise #3 | Data #4 | Rise #4 | Data #5 | Rise #5 | Data #6 | Rise #6 | Data #7 | Rise #7 | Data #8 | Rise #8 | Data #9 | Rise #9 |
| 1                 | 3:05:28 PM  | 11/14/2012 | 2.2     | 15.8    | -1.2    | 15.7    | -1.3    | 15.8    | -1.2    | 15.4    | -1.6    | 15.0    | -2.0    | 15.0    | -2.0    |
| 3                 | 3:35:25 PM  | 11/14/2012 | 5.2     | 20.7    | 3.2     | 20.8    | 3.3     | 20.5    | 3.0     | 19.3    | 1.8     | 19.0    | 1.5     | 18.7    | 1.2     |
| 4                 | 4:05:24 PM  | 11/14/2012 | 6.9     | 25.9    | 8.1     | 26.5    | 8.7     | 25.6    | 7.8     | 24.2    | 6.4     | 24.0    | 6.2     | 23.6    | 5.8     |
| 5                 | 4:35:24 PM  | 11/14/2012 | 8.3     | 29.6    | 12.2    | 30.8    | 13.4    | 29.4    | 12.0    | 28.3    | 10.9    | 28.5    | 11.1    | 27.8    | 10.4    |
| 6                 | 5:05:23 PM  | 11/14/2012 | 9.0     | 32.3    | 14.1    | 33.9    | 15.7    | 32.2    | 14.0    | 31.7    | 13.5    | 32.4    | 14.2    | 31.5    | 13.3    |
| 7                 | 5:35:23 PM  | 11/14/2012 | 9.8     | 34.2    | 16.1    | 36.1    | 18.0    | 34.3    | 16.2    | 34.5    | 16.4    | 35.5    | 17.4    | 34.5    | 16.4    |
| 8                 | 6:05:22 PM  | 11/14/2012 | 10.5    | 35.5    | 17.6    | 37.6    | 19.7    | 35.6    | 17.7    | 36.6    | 18.7    | 37.9    | 20.0    | 36.8    | 18.9    |
| 9                 | 6:35:22 PM  | 11/14/2012 | 11.2    | 36.2    | 18.7    | 38.4    | 20.9    | 36.5    | 19.0    | 38.2    | 20.7    | 39.8    | 22.3    | 38.7    | 21.2    |
| 10                | 7:05:21 PM  | 11/14/2012 | 11.7    | 36.6    | 19.4    | 39.0    | 21.8    | 37.0    | 19.8    | 39.3    | 22.1    | 41.2    | 24.0    | 40.1    | 22.9    |
| 11                | 7:35:21 PM  | 11/14/2012 | 12.1    | 36.9    | 20.0    | 39.4    | 22.5    | 37.4    | 20.5    | 40.2    | 23.3    | 42.1    | 25.2    | 41.0    | 24.1    |
| 12                | 8:05:20 PM  | 11/14/2012 | 11.8    | 37.3    | 19.7    | 39.8    | 22.2    | 37.9    | 20.3    | 41.1    | 23.5    | 43.0    | 25.4    | 42.0    | 24.4    |
| 13                | 8:35:20 PM  | 11/14/2012 | 11.6    | 37.9    | 19.9    | 40.5    | 22.5    | 38.5    | 20.5    | 41.9    | 23.9    | 43.9    | 25.9    | 42.8    | 24.8    |
| 14                | 9:05:29 PM  | 11/14/2012 | 11.8    | 38.4    | 20.4    | 40.9    | 22.9    | 38.9    | 20.9    | 42.6    | 24.6    | 44.5    | 26.5    | 43.4    | 25.4    |
| 15                | 9:35:29 PM  | 11/14/2012 | 12.0    | 38.7    | 20.8    | 41.3    | 23.4    | 39.3    | 21.4    | 43.1    | 25.2    | 45.0    | 27.1    | 43.9    | 26.0    |
| 16                | 10:05:28 PM | 11/14/2012 | 11.4    | 39.1    | 20.3    | 41.6    | 22.8    | 39.6    | 20.8    | 43.4    | 24.6    | 45.6    | 26.8    | 44.5    | 25.7    |
| 17                | 10:35:28 PM | 11/14/2012 | 10.9    | 39.6    | 19.8    | 42.0    | 22.2    | 39.9    | 20.1    | 43.8    | 24.0    | 46.2    | 26.4    | 45.1    | 25.3    |
| 18                | 11:05:27 PM | 11/14/2012 | 11.2    | 40.4    | 20.5    | 42.7    | 22.8    | 40.6    | 20.7    | 44.7    | 24.8    | 46.8    | 26.9    | 45.6    | 25.7    |
| 19                | 11:35:27 PM | 11/14/2012 | 11.4    | 40.9    | 20.9    | 43.1    | 23.1    | 40.9    | 20.9    | 45.3    | 25.3    | 47.3    | 27.3    | 46.1    | 26.1    |
| 20                | 12:05:27 AM | 11/15/2012 | 11.5    | 41.3    | 21.4    | 43.4    | 23.5    | 41.3    | 21.4    | 45.8    | 25.9    | 47.6    | 27.7    | 46.4    | 26.5    |
| 21                | 12:35:26 AM | 11/15/2012 | 11.6    | 41.6    | 21.6    | 43.7    | 23.7    | 41.6    | 21.6    | 46.2    | 26.2    | 48.0    | 28.0    | 46.8    | 26.8    |
| 22                | 1:05:26 AM  | 11/15/2012 | 11.7    | 41.8    | 21.8    | 43.9    | 23.9    | 41.8    | 21.8    | 46.5    | 26.5    | 48.4    | 28.4    | 47.2    | 27.2    |
| 23                | 1:35:25 AM  | 11/15/2012 | 11.6    | 42.1    | 21.9    | 44.2    | 24.0    | 42.1    | 21.9    | 46.8    | 26.6    | 48.8    | 28.6    | 47.5    | 27.3    |
| 24                | 2:05:25 AM  | 11/15/2012 | 11.7    | 42.3    | 22.1    | 44.3    | 24.1    | 42.2    | 22.0    | 46.9    | 26.7    | 48.9    | 28.7    | 47.7    | 27.5    |
| 25                | 2:35:24 AM  | 11/15/2012 | 11.5    | 42.6    | 22.3    | 44.6    | 24.3    | 42.4    | 22.1    | 47.1    | 26.8    | 49.1    | 28.8    | 48.0    | 27.7    |
| 26                | 3:05:24 AM  | 11/15/2012 | 11.7    | 42.6    | 22.4    | 44.7    | 24.5    | 42.5    | 22.3    | 47.2    | 27.0    | 49.3    | 29.1    | 48.1    | 27.9    |
| 27                | 3:35:23 AM  | 11/15/2012 | 11.7    | 42.8    | 22.6    | 44.8    | 24.6    | 42.6    | 22.4    | 47.3    | 27.1    | 49.5    | 29.3    | 48.3    | 28.1    |
| 28                | 4:05:23 AM  | 11/15/2012 | 11.7    | 42.9    | 22.6    | 45.0    | 24.7    | 42.7    | 22.4    | 47.4    | 27.1    | 49.6    | 29.3    | 48.4    | 28.1    |
| 29                | 4:35:22 AM  | 11/15/2012 | 11.7    | 43.0    | 22.7    | 45.1    | 24.8    | 42.8    | 22.5    | 47.4    | 27.1    | 49.7    | 29.4    | 48.5    | 28.2    |
| 30                | 5:05:22 AM  | 11/15/2012 | 11.6    | 43.1    | 22.8    | 45.2    | 24.9    | 42.8    | 22.5    | 47.5    | 27.2    | 49.7    | 29.4    | 48.6    | 28.3    |
| 31                | 5:35:21 AM  | 11/15/2012 | 11.7    | 43.0    | 22.6    | 45.1    | 24.7    | 42.7    | 22.3    | 47.5    | 27.1    | 49.7    | 29.3    | 48.5    | 28.1    |

## TEMPERATURE CHART(S)

| Test Numb 12269-C |          | Run        |            |         |         |         |         |         |         |         |         |         |         |         |         |         |
|-------------------|----------|------------|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Record#           | Channel# | Time       | Date       | 6       | 7       | 7       | 8       | 8       | 9       | 9       | 10      | 10      | 11      | 11      | 12      | 12      |
|                   |          |            |            | Rise #3 | Data #4 | Rise #4 | Data #5 | Rise #5 | Data #6 | Rise #6 | Data #7 | Rise #7 | Data #8 | Rise #8 | Data #9 | Rise #9 |
| 32                |          | 6:05:31 AM | 11/15/2012 | 11.8    | 43.2    | 22.7    | 45.2    | 24.7    | 42.9    | 22.4    | 47.6    | 27.1    | 49.8    | 29.3    | 48.6    | 28.1    |
| 33                |          | 6:35:31 AM | 11/15/2012 | 11.7    | 43.0    | 22.8    | 45.0    | 24.8    | 42.6    | 22.4    | 47.3    | 27.1    | 49.7    | 29.5    | 48.5    | 28.3    |
| 34                |          | 7:05:31 AM | 11/15/2012 | 11.7    | 42.8    | 22.8    | 44.8    | 24.8    | 42.4    | 22.4    | 47.1    | 27.1    | 49.5    | 29.5    | 48.4    | 28.4    |
| 35                |          | 7:36:30 AM | 11/15/2012 | 9.5     | 40.2    | 19.9    | 42.1    | 21.8    | 39.9    | 19.6    | 44.8    | 24.5    | 47.0    | 26.7    | 46.2    | 25.9    |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperatures shall show a maximum variation of  $\pm 1^{\circ}\text{C}$ .)

The interval between readings for this t

Test Numb 12269-C Run

| TC Types: | Rise #3 | Data #4 | Rise #4 | Data #5 | Rise #5 | Data #6 | Rise #6 | Data #7 | Rise #7 | Data #8 | Rise #8 | Data #9 | Rise #9 |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|           | T       |         | T       |         | T       |         | T       |         | T       |         | T       |         | T       |

## TEMPERATURE CHART(S)

| Test Numb 12269-C |             | Run        |          |          |          |          |          |          |          |          |          |          |          |          |  |    |  |    |  |    |  |    |  |    |  |
|-------------------|-------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----|--|----|--|----|--|----|--|----|--|
| Channel#          |             | 13         |          | 13       |          | 14       |          | 14       |          | 15       |          | 15       |          | 16       |  | 16 |  | 17 |  | 17 |  | 18 |  | 18 |  |
| Record#           | Time        | Date       | Data #10 | Rise #10 | Data #11 | Rise #11 | Data #12 | Rise #12 | Data #13 | Rise #13 | Data #14 | Rise #14 | Data #15 | Rise #15 |  |    |  |    |  |    |  |    |  |    |  |
| 1                 | 3:05:28 PM  | 11/14/2012 | 15.5     | -1.5     | 15.3     | -1.7     | 15.3     | -1.7     | 16.3     | -0.7     | 16.3     | -0.7     | 16.3     | -0.7     |  |    |  |    |  |    |  |    |  |    |  |
| 3                 | 3:35:25 PM  | 11/14/2012 | 20.7     | 3.2      | 20.5     | 3.0      | 20.2     | 2.7      | 24.7     | 7.2      | 24.4     | 6.9      | 24.7     | 7.2      |  |    |  |    |  |    |  |    |  |    |  |
| 4                 | 4:05:24 PM  | 11/14/2012 | 26.3     | 8.5      | 26.4     | 8.6      | 25.6     | 7.8      | 31.5     | 13.7     | 31.7     | 13.9     | 31.8     | 14.0     |  |    |  |    |  |    |  |    |  |    |  |
| 5                 | 4:35:24 PM  | 11/14/2012 | 30.2     | 12.8     | 30.7     | 13.3     | 29.6     | 12.2     | 35.6     | 18.2     | 36.5     | 19.1     | 36.2     | 18.8     |  |    |  |    |  |    |  |    |  |    |  |
| 6                 | 5:05:23 PM  | 11/14/2012 | 33.2     | 15.0     | 33.9     | 15.7     | 32.6     | 14.4     | 38.3     | 20.1     | 39.7     | 21.5     | 39.0     | 20.8     |  |    |  |    |  |    |  |    |  |    |  |
| 7                 | 5:35:23 PM  | 11/14/2012 | 35.3     | 17.2     | 36.3     | 18.2     | 34.9     | 16.8     | 40.1     | 22.0     | 41.8     | 23.7     | 41.0     | 22.9     |  |    |  |    |  |    |  |    |  |    |  |
| 8                 | 6:05:22 PM  | 11/14/2012 | 36.8     | 18.9     | 37.9     | 20.0     | 36.5     | 18.6     | 41.2     | 23.3     | 43.2     | 25.3     | 42.3     | 24.4     |  |    |  |    |  |    |  |    |  |    |  |
| 9                 | 6:35:22 PM  | 11/14/2012 | 37.8     | 20.3     | 39.1     | 21.6     | 37.6     | 20.1     | 41.9     | 24.4     | 44.1     | 26.6     | 43.2     | 25.7     |  |    |  |    |  |    |  |    |  |    |  |
| 10                | 7:05:21 PM  | 11/14/2012 | 38.4     | 21.2     | 39.9     | 22.7     | 38.4     | 21.2     | 42.3     | 25.1     | 44.6     | 27.4     | 43.8     | 26.6     |  |    |  |    |  |    |  |    |  |    |  |
| 11                | 7:35:21 PM  | 11/14/2012 | 38.8     | 21.9     | 40.4     | 23.5     | 38.9     | 22.0     | 42.6     | 25.7     | 45.0     | 28.1     | 44.2     | 27.3     |  |    |  |    |  |    |  |    |  |    |  |
| 12                | 8:05:20 PM  | 11/14/2012 | 39.4     | 21.8     | 40.9     | 23.3     | 39.5     | 21.9     | 43.0     | 25.4     | 45.5     | 27.9     | 44.6     | 27.0     |  |    |  |    |  |    |  |    |  |    |  |
| 13                | 8:35:20 PM  | 11/14/2012 | 39.9     | 21.9     | 41.5     | 23.5     | 40.0     | 22.0     | 43.7     | 25.7     | 46.1     | 28.1     | 45.3     | 27.3     |  |    |  |    |  |    |  |    |  |    |  |
| 14                | 9:05:29 PM  | 11/14/2012 | 40.3     | 22.3     | 41.9     | 23.9     | 40.3     | 22.3     | 44.2     | 26.2     | 46.6     | 28.6     | 45.7     | 27.7     |  |    |  |    |  |    |  |    |  |    |  |
| 15                | 9:35:29 PM  | 11/14/2012 | 40.6     | 22.7     | 42.2     | 24.3     | 40.6     | 22.7     | 44.5     | 26.6     | 47.0     | 29.1     | 46.1     | 28.2     |  |    |  |    |  |    |  |    |  |    |  |
| 16                | 10:05:28 PM | 11/14/2012 | 40.9     | 22.1     | 42.6     | 23.8     | 41.0     | 22.2     | 45.0     | 26.2     | 47.5     | 28.7     | 46.6     | 27.8     |  |    |  |    |  |    |  |    |  |    |  |
| 17                | 10:35:28 PM | 11/14/2012 | 41.5     | 21.7     | 43.2     | 23.4     | 41.5     | 21.7     | 45.6     | 25.8     | 48.0     | 28.2     | 47.1     | 27.3     |  |    |  |    |  |    |  |    |  |    |  |
| 18                | 11:05:27 PM | 11/14/2012 | 41.9     | 22.0     | 43.6     | 23.7     | 42.0     | 22.1     | 46.3     | 26.4     | 48.6     | 28.7     | 47.7     | 27.8     |  |    |  |    |  |    |  |    |  |    |  |
| 19                | 11:35:27 PM | 11/14/2012 | 42.3     | 22.3     | 44.1     | 24.1     | 42.4     | 22.4     | 46.8     | 26.8     | 49.1     | 29.1     | 48.1     | 28.1     |  |    |  |    |  |    |  |    |  |    |  |
| 20                | 12:05:27 AM | 11/15/2012 | 42.5     | 22.6     | 44.3     | 24.4     | 42.7     | 22.8     | 47.1     | 27.2     | 49.3     | 29.4     | 48.4     | 28.5     |  |    |  |    |  |    |  |    |  |    |  |
| 21                | 12:35:26 AM | 11/15/2012 | 42.7     | 22.7     | 44.6     | 24.6     | 42.9     | 22.9     | 47.3     | 27.3     | 49.6     | 29.6     | 48.6     | 28.6     |  |    |  |    |  |    |  |    |  |    |  |
| 22                | 1:05:26 AM  | 11/15/2012 | 43.0     | 23.0     | 44.8     | 24.8     | 43.2     | 23.2     | 47.6     | 27.6     | 49.9     | 29.9     | 48.9     | 28.9     |  |    |  |    |  |    |  |    |  |    |  |
| 23                | 1:35:25 AM  | 11/15/2012 | 43.2     | 23.0     | 45.0     | 24.8     | 43.4     | 23.2     | 47.9     | 27.7     | 50.2     | 30.0     | 49.2     | 29.0     |  |    |  |    |  |    |  |    |  |    |  |
| 24                | 2:05:25 AM  | 11/15/2012 | 43.3     | 23.1     | 45.1     | 24.9     | 43.5     | 23.3     | 48.0     | 27.8     | 50.3     | 30.1     | 49.4     | 29.2     |  |    |  |    |  |    |  |    |  |    |  |
| 25                | 2:35:24 AM  | 11/15/2012 | 43.4     | 23.1     | 45.3     | 25.0     | 43.6     | 23.3     | 48.3     | 28.0     | 50.6     | 30.3     | 49.6     | 29.3     |  |    |  |    |  |    |  |    |  |    |  |
| 26                | 3:05:24 AM  | 11/15/2012 | 43.5     | 23.3     | 45.3     | 25.1     | 43.6     | 23.4     | 48.4     | 28.2     | 50.7     | 30.5     | 49.7     | 29.5     |  |    |  |    |  |    |  |    |  |    |  |
| 27                | 3:35:23 AM  | 11/15/2012 | 43.6     | 23.4     | 45.4     | 25.2     | 43.7     | 23.5     | 48.5     | 28.3     | 50.9     | 30.7     | 49.8     | 29.6     |  |    |  |    |  |    |  |    |  |    |  |
| 28                | 4:05:23 AM  | 11/15/2012 | 43.6     | 23.3     | 45.5     | 25.2     | 43.8     | 23.5     | 48.6     | 28.3     | 51.0     | 30.7     | 49.9     | 29.6     |  |    |  |    |  |    |  |    |  |    |  |
| 29                | 4:35:22 AM  | 11/15/2012 | 43.7     | 23.4     | 45.5     | 25.2     | 43.9     | 23.6     | 48.6     | 28.3     | 51.0     | 30.7     | 49.9     | 29.6     |  |    |  |    |  |    |  |    |  |    |  |
| 30                | 5:05:22 AM  | 11/15/2012 | 43.7     | 23.4     | 45.6     | 25.3     | 43.9     | 23.6     | 48.7     | 28.4     | 51.1     | 30.8     | 50.0     | 29.7     |  |    |  |    |  |    |  |    |  |    |  |
| 31                | 5:35:21 AM  | 11/15/2012 | 43.6     | 23.2     | 45.5     | 25.1     | 43.8     | 23.4     | 48.6     | 28.2     | 51.0     | 30.6     | 49.9     | 29.5     |  |    |  |    |  |    |  |    |  |    |  |

## TEMPERATURE CHART(S)

| Test Numb 12269-C |            | Run        | 13       |          | 14       |          | 15       |          | 16       |          | 17       |          | 18       |          |
|-------------------|------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Record#           | Channel#   | Date       | Data #10 | Rise #10 | Data #11 | Rise #11 | Data #12 | Rise #12 | Data #13 | Rise #13 | Data #14 | Rise #14 | Data #15 | Rise #15 |
| 32                | 6:05:31 AM | 11/15/2012 | 43.7     | 23.2     | 45.6     | 25.1     | 43.9     | 23.4     | 48.7     | 28.2     | 51.1     | 30.6     | 50.0     | 29.5     |
| 33                | 6:35:31 AM | 11/15/2012 | 43.6     | 23.4     | 45.4     | 25.2     | 43.7     | 23.5     | 48.4     | 28.2     | 50.8     | 30.6     | 49.7     | 29.5     |
| 34                | 7:05:31 AM | 11/15/2012 | 43.3     | 23.3     | 45.1     | 25.1     | 43.4     | 23.4     | 48.3     | 28.3     | 50.7     | 30.7     | 49.6     | 29.6     |
| 35                | 7:36:30 AM | 11/15/2012 | 40.5     | 20.2     | 42.2     | 21.9     | 40.6     | 20.3     | 43.3     | 23.0     | 45.7     | 25.4     | 44.2     | 23.9     |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperatu

The interval between readings for this t

Test Numb 12269-C Run

| TC Types: | Data #10 | Rise #10 | Data #11 | Rise #11 | Data #12 | Rise #12 | Data #13 | Rise #13 | Data #14 | Rise #14 | Data #15 | Rise #15 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|           | T        |          | T        |          | T        |          | T        |          | T        |          | T        |          |

## TEMPERATURE CHART(S)

| Test Numb 12269-C |             | Run        |          |          |          |          |          |          |          |          |          |          |          |          |  |    |  |    |  |    |  |    |  |    |  |
|-------------------|-------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|----|--|----|--|----|--|----|--|----|--|
| Channel#          |             | 19         |          | 19       |          | 20       |          | 20       |          | 21       |          | 21       |          | 22       |  | 22 |  | 23 |  | 23 |  | 24 |  | 24 |  |
| Record#           | Time        | Date       | Data #16 | Rise #16 | Data #17 | Rise #17 | Data #18 | Rise #18 | Data #19 | Rise #19 | Data #20 | Rise #20 | Data #21 | Rise #21 |  |    |  |    |  |    |  |    |  |    |  |
| 1                 | 3:05:28 PM  | 11/14/2012 | 15.4     | -1.6     | 15.2     | -1.8     | 15.2     | -1.8     | 16.1     | -0.9     | 15.9     | -1.1     | 16.0     | -1.0     |  |    |  |    |  |    |  |    |  |    |  |
| 3                 | 3:35:25 PM  | 11/14/2012 | 20.1     | 2.6      | 19.7     | 2.2      | 20.3     | 2.8      | 24.2     | 6.7      | 24.1     | 6.6      | 24.4     | 6.9      |  |    |  |    |  |    |  |    |  |    |  |
| 4                 | 4:05:24 PM  | 11/14/2012 | 25.3     | 7.5      | 24.9     | 7.1      | 25.4     | 7.6      | 30.8     | 13.0     | 31.0     | 13.2     | 31.2     | 13.4     |  |    |  |    |  |    |  |    |  |    |  |
| 5                 | 4:35:24 PM  | 11/14/2012 | 29.4     | 12.0     | 29.2     | 11.8     | 29.8     | 12.4     | 35.0     | 17.6     | 35.6     | 18.2     | 35.6     | 18.2     |  |    |  |    |  |    |  |    |  |    |  |
| 6                 | 5:05:23 PM  | 11/14/2012 | 32.8     | 14.6     | 32.7     | 14.5     | 33.4     | 15.2     | 37.9     | 19.7     | 38.8     | 20.6     | 38.4     | 20.2     |  |    |  |    |  |    |  |    |  |    |  |
| 7                 | 5:35:23 PM  | 11/14/2012 | 35.5     | 17.4     | 35.8     | 17.7     | 36.3     | 18.2     | 39.9     | 21.8     | 41.1     | 23.0     | 40.4     | 22.3     |  |    |  |    |  |    |  |    |  |    |  |
| 8                 | 6:05:22 PM  | 11/14/2012 | 37.6     | 19.7     | 38.2     | 20.3     | 38.7     | 20.8     | 41.2     | 23.3     | 42.6     | 24.7     | 41.8     | 23.9     |  |    |  |    |  |    |  |    |  |    |  |
| 9                 | 6:35:22 PM  | 11/14/2012 | 39.2     | 21.7     | 40.0     | 22.5     | 40.5     | 23.0     | 42.2     | 24.7     | 43.6     | 26.1     | 42.8     | 25.3     |  |    |  |    |  |    |  |    |  |    |  |
| 10                | 7:05:21 PM  | 11/14/2012 | 40.4     | 23.2     | 41.3     | 24.1     | 41.8     | 24.6     | 42.8     | 25.6     | 44.3     | 27.1     | 43.5     | 26.3     |  |    |  |    |  |    |  |    |  |    |  |
| 11                | 7:35:21 PM  | 11/14/2012 | 41.3     | 24.4     | 42.4     | 25.5     | 42.9     | 26.0     | 43.4     | 26.5     | 44.9     | 28.0     | 44.1     | 27.2     |  |    |  |    |  |    |  |    |  |    |  |
| 12                | 8:05:20 PM  | 11/14/2012 | 42.0     | 24.4     | 43.2     | 25.6     | 43.9     | 26.3     | 43.9     | 26.3     | 45.5     | 27.9     | 44.7     | 27.1     |  |    |  |    |  |    |  |    |  |    |  |
| 13                | 8:35:20 PM  | 11/14/2012 | 42.8     | 24.8     | 44.1     | 26.1     | 44.7     | 26.7     | 44.5     | 26.5     | 46.1     | 28.1     | 45.2     | 27.2     |  |    |  |    |  |    |  |    |  |    |  |
| 14                | 9:05:29 PM  | 11/14/2012 | 43.5     | 25.5     | 44.8     | 26.8     | 45.3     | 27.3     | 44.9     | 26.9     | 46.5     | 28.5     | 45.6     | 27.6     |  |    |  |    |  |    |  |    |  |    |  |
| 15                | 9:35:29 PM  | 11/14/2012 | 43.9     | 26.0     | 45.4     | 27.5     | 45.8     | 27.9     | 45.2     | 27.3     | 46.7     | 28.8     | 45.8     | 27.9     |  |    |  |    |  |    |  |    |  |    |  |
| 16                | 10:05:28 PM | 11/14/2012 | 44.6     | 25.8     | 45.9     | 27.1     | 46.4     | 27.6     | 45.6     | 26.8     | 47.1     | 28.3     | 46.1     | 27.3     |  |    |  |    |  |    |  |    |  |    |  |
| 17                | 10:35:28 PM | 11/14/2012 | 45.2     | 25.4     | 46.5     | 26.7     | 47.0     | 27.2     | 46.0     | 26.2     | 47.6     | 27.8     | 46.5     | 26.7     |  |    |  |    |  |    |  |    |  |    |  |
| 18                | 11:05:27 PM | 11/14/2012 | 45.8     | 25.9     | 47.1     | 27.2     | 47.6     | 27.7     | 46.5     | 26.6     | 48.2     | 28.3     | 47.0     | 27.1     |  |    |  |    |  |    |  |    |  |    |  |
| 19                | 11:35:27 PM | 11/14/2012 | 46.4     | 26.4     | 47.7     | 27.7     | 48.1     | 28.1     | 47.0     | 27.0     | 48.6     | 28.6     | 47.5     | 27.5     |  |    |  |    |  |    |  |    |  |    |  |
| 20                | 12:05:27 AM | 11/15/2012 | 46.8     | 26.9     | 48.2     | 28.3     | 48.5     | 28.6     | 47.1     | 27.2     | 48.9     | 29.0     | 47.7     | 27.8     |  |    |  |    |  |    |  |    |  |    |  |
| 21                | 12:35:26 AM | 11/15/2012 | 47.2     | 27.2     | 48.5     | 28.5     | 48.8     | 28.8     | 47.4     | 27.4     | 49.1     | 29.1     | 47.9     | 27.9     |  |    |  |    |  |    |  |    |  |    |  |
| 22                | 1:05:26 AM  | 11/15/2012 | 47.6     | 27.6     | 48.9     | 28.9     | 49.3     | 29.3     | 47.7     | 27.7     | 49.5     | 29.5     | 48.3     | 28.3     |  |    |  |    |  |    |  |    |  |    |  |
| 23                | 1:35:25 AM  | 11/15/2012 | 47.8     | 27.6     | 49.2     | 29.0     | 49.5     | 29.3     | 47.9     | 27.7     | 49.6     | 29.4     | 48.4     | 28.2     |  |    |  |    |  |    |  |    |  |    |  |
| 24                | 2:05:25 AM  | 11/15/2012 | 48.0     | 27.8     | 49.4     | 29.2     | 49.7     | 29.5     | 48.0     | 27.8     | 49.7     | 29.5     | 48.5     | 28.3     |  |    |  |    |  |    |  |    |  |    |  |
| 25                | 2:35:24 AM  | 11/15/2012 | 48.2     | 27.9     | 49.6     | 29.3     | 50.0     | 29.7     | 48.1     | 27.8     | 49.8     | 29.5     | 48.6     | 28.3     |  |    |  |    |  |    |  |    |  |    |  |
| 26                | 3:05:24 AM  | 11/15/2012 | 48.3     | 28.1     | 49.8     | 29.6     | 50.1     | 29.9     | 48.1     | 27.9     | 49.9     | 29.7     | 48.7     | 28.5     |  |    |  |    |  |    |  |    |  |    |  |
| 27                | 3:35:23 AM  | 11/15/2012 | 48.4     | 28.2     | 49.9     | 29.7     | 50.2     | 30.0     | 48.1     | 27.9     | 49.9     | 29.7     | 48.7     | 28.5     |  |    |  |    |  |    |  |    |  |    |  |
| 28                | 4:05:23 AM  | 11/15/2012 | 48.6     | 28.3     | 50.0     | 29.7     | 50.3     | 30.0     | 48.2     | 27.9     | 50.0     | 29.7     | 48.7     | 28.4     |  |    |  |    |  |    |  |    |  |    |  |
| 29                | 4:35:22 AM  | 11/15/2012 | 48.6     | 28.3     | 50.1     | 29.8     | 50.4     | 30.1     | 48.2     | 27.9     | 50.0     | 29.7     | 48.7     | 28.4     |  |    |  |    |  |    |  |    |  |    |  |
| 30                | 5:05:22 AM  | 11/15/2012 | 48.7     | 28.4     | 50.1     | 29.8     | 50.5     | 30.2     | 48.3     | 28.0     | 50.0     | 29.7     | 48.8     | 28.5     |  |    |  |    |  |    |  |    |  |    |  |
| 31                | 5:35:21 AM  | 11/15/2012 | 48.6     | 28.2     | 50.0     | 29.6     | 50.4     | 30.0     | 48.2     | 27.8     | 50.0     | 29.6     | 48.8     | 28.4     |  |    |  |    |  |    |  |    |  |    |  |



## TEMPERATURE CHART(S)

| Test Numb 12269-C |            | Run        | 19       |          | 20       |          | 21       |          | 22       |          | 23       |          | 24       |          |
|-------------------|------------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Record#           | Channel#   | Date       | Data #16 | Rise #16 | Data #17 | Rise #17 | Data #18 | Rise #18 | Data #19 | Rise #19 | Data #20 | Rise #20 | Data #21 | Rise #21 |
| 32                | 6:05:31 AM | 11/15/2012 | 48.7     | 28.2     | 50.2     | 29.7     | 50.5     | 30.0     | 48.3     | 27.8     | 50.0     | 29.5     | 48.8     | 28.3     |
| 33                | 6:35:31 AM | 11/15/2012 | 48.6     | 28.4     | 50.0     | 29.8     | 50.4     | 30.2     | 48.0     | 27.8     | 49.8     | 29.6     | 48.5     | 28.3     |
| 34                | 7:05:31 AM | 11/15/2012 | 48.5     | 28.5     | 50.1     | 30.1     | 50.2     | 30.2     | 47.8     | 27.8     | 49.6     | 29.6     | 48.4     | 28.4     |
| 35                | 7:36:30 AM | 11/15/2012 | 44.8     | 24.5     | 46.5     | 26.2     | 47.0     | 26.7     | 43.2     | 22.9     | 45.1     | 24.8     | 43.6     | 23.3     |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperatu

The interval between readings for this t

Test Numb 12269-C Run

| TC Types: | Data #16 | Rise #16 | Data #17 | Rise #17 | Data #18 | Rise #18 | Data #19 | Rise #19 | Data #20 | Rise #20 | Data #21 | Rise #21 |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|           | T        |          | T        |          | T        |          | T        |          | T        |          | T        |          |

## TEMPERATURE CHART(S)

| Test Numb | 12269-C     | Run               |
|-----------|-------------|-------------------|
| Record#   | Channel#    | Date              |
| 1         | 3:05:28 PM  | 11/14/2012        |
| 3         | 3:35:25 PM  | 11/14/2012        |
| 4         | 4:05:24 PM  | 11/14/2012        |
| 5         | 4:35:24 PM  | 11/14/2012        |
| 6         | 5:05:23 PM  | 11/14/2012        |
| 7         | 5:35:23 PM  | 11/14/2012        |
| 8         | 6:05:22 PM  | 11/14/2012        |
| 9         | 6:35:22 PM  | 11/14/2012        |
| 10        | 7:05:21 PM  | 11/14/2012        |
| 11        | 7:35:21 PM  | 11/14/2012        |
| 12        | 8:05:20 PM  | 11/14/2012        |
| 13        | 8:35:20 PM  | 11/14/2012 Stable |
| 14        | 9:05:29 PM  | 11/14/2012        |
| 15        | 9:35:29 PM  | 11/14/2012        |
| 16        | 10:05:28 PM | 11/14/2012 Stable |
| 17        | 10:35:28 PM | 11/14/2012        |
| 18        | 11:05:27 PM | 11/14/2012 Stable |
| 19        | 11:35:27 PM | 11/14/2012        |
| 20        | 12:05:27 AM | 11/15/2012        |
| 21        | 12:35:26 AM | 11/15/2012 Stable |
| 22        | 1:05:26 AM  | 11/15/2012 Stable |
| 23        | 1:35:25 AM  | 11/15/2012 Stable |
| 24        | 2:05:25 AM  | 11/15/2012 Stable |
| 25        | 2:35:24 AM  | 11/15/2012 Stable |
| 26        | 3:05:24 AM  | 11/15/2012 Stable |
| 27        | 3:35:23 AM  | 11/15/2012 Stable |
| 28        | 4:05:23 AM  | 11/15/2012 Stable |
| 29        | 4:35:22 AM  | 11/15/2012 Stable |
| 30        | 5:05:22 AM  | 11/15/2012 Stable |
| 31        | 5:35:21 AM  | 11/15/2012 Stable |

## TEMPERATURE CHART(S)

| Test Numb | 12269-C    | Run        |        |
|-----------|------------|------------|--------|
| Record#   | Time       | Date       |        |
| 32        | 6:05:31 AM | 11/15/2012 | Stable |
| 33        | 6:35:31 AM | 11/15/2012 | Stable |
| 34        | 7:05:31 AM | 11/15/2012 | Stable |
| 35        | 7:36:30 AM | 11/15/2012 |        |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperatu

The interval between readings for this t

Test Numb 12269-C      Run

TC Types:

## TEMPERATURE CHART(S)

| Test Numb | 12269-C     | Run        | 2       | Amb        | 1       | 2          | 3       |            |         |         |         |         |         |         |
|-----------|-------------|------------|---------|------------|---------|------------|---------|------------|---------|---------|---------|---------|---------|---------|
| Channel#  |             |            |         | 1          | 1       | 2          | 2       | 3          | 3       | 4       | 4       | 5       | 5       | 6       |
| Record#   | Time        | Date       | Avg Amb | Ambient #1 | Rise #1 | Ambient #2 | Rise #2 | Ambient #3 | Rise #3 | Data #1 | Rise #1 | Data #2 | Rise #2 | Data #3 |
| 1         | 8:33:33 AM  | 11/16/2012 | 21.8    | 21.6       | -0.2    | 22.6       | 0.8     | 21.3       | -0.5    | 23.4    | 1.6     | 24.2    | 2.4     | 22.9    |
| 3         | 9:03:29 AM  | 11/16/2012 | 20.7    | 20.8       | 0.1     | 20.6       | -0.1    | 20.7       | 0.0     | 26.4    | 5.7     | 27.9    | 7.2     | 26.4    |
| 4         | 9:33:26 AM  | 11/16/2012 | 19.9    | 19.7       | -0.2    | 19.6       | -0.3    | 20.3       | 0.4     | 27.4    | 7.5     | 29.2    | 9.3     | 28.2    |
| 5         | 10:03:32 AM | 11/16/2012 | 20.3    | 20.0       | -0.3    | 20.1       | -0.2    | 20.7       | 0.4     | 29.0    | 8.7     | 30.8    | 10.5    | 29.6    |
| 6         | 10:33:29 AM | 11/16/2012 | 20.5    | 20.2       | -0.3    | 20.2       | -0.3    | 21.1       | 0.6     | 30.2    | 9.7     | 31.8    | 11.3    | 30.8    |
| 7         | 11:03:25 AM | 11/16/2012 | 19.8    | 19.8       | 0.0     | 19.5       | -0.3    | 20.2       | 0.4     | 30.2    | 10.4    | 32.4    | 12.6    | 31.1    |
| 8         | 11:33:32 AM | 11/16/2012 | 20.3    | 19.9       | -0.4    | 20.0       | -0.3    | 21.0       | 0.7     | 31.2    | 10.9    | 33.3    | 13.0    | 32.0    |
| 9         | 12:03:29 PM | 11/16/2012 | 19.0    | 18.3       | -0.7    | 18.5       | -0.5    | 20.2       | 1.2     | 30.2    | 11.2    | 33.1    | 14.1    | 32.1    |
| 10        | 12:33:25 PM | 11/16/2012 | 19.0    | 18.2       | -0.8    | 18.5       | -0.5    | 20.3       | 1.3     | 30.6    | 11.6    | 33.4    | 14.4    | 32.2    |
| 11        | 1:03:32 PM  | 11/16/2012 | 21.2    | 20.5       | -0.7    | 20.9       | -0.3    | 22.2       | 1.0     | 32.6    | 11.4    | 34.9    | 13.7    | 33.1    |
| 12        | 1:33:28 PM  | 11/16/2012 | 21.1    | 20.5       | -0.6    | 20.6       | -0.5    | 22.1       | 1.0     | 32.2    | 11.1    | 35.2    | 14.1    | 33.7    |
| 13        | 2:03:25 PM  | 11/16/2012 | 20.3    | 19.7       | -0.6    | 19.9       | -0.4    | 21.3       | 1.0     | 32.0    | 11.7    | 34.9    | 14.6    | 33.5    |
| 14        | 2:33:31 PM  | 11/16/2012 | 20.8    | 20.2       | -0.6    | 20.4       | -0.4    | 21.8       | 1.0     | 32.5    | 11.7    | 35.4    | 14.6    | 33.7    |
| 15        | 3:03:28 PM  | 11/16/2012 | 21.4    | 20.8       | -0.6    | 21.1       | -0.3    | 22.3       | 0.9     | 32.8    | 11.4    | 35.8    | 14.4    | 33.9    |
| 16        | 3:33:24 PM  | 11/16/2012 | 21.3    | 20.7       | -0.6    | 20.9       | -0.4    | 22.3       | 1.0     | 32.6    | 11.3    | 35.9    | 14.6    | 34.3    |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperature of any monitored point is substantially constant. (Three successive readings at not less than 30 min intervals of hottest-spo

The interval between readings for this test was 30 Min

Test Numb 12269-C Run 3.0

| TC Types: | Ambient #1 | Rise #1 | Ambient #2 | Rise #2 | Ambient #3 | Rise #3 | Data #1 | Rise #1 | Data #2 | Rise #2 | Data #3 |
|-----------|------------|---------|------------|---------|------------|---------|---------|---------|---------|---------|---------|
|           | T          |         | T          |         | T          |         | T       |         | T       |         | T       |

## TEMPERATURE CHART(S)

| Test Numb 12269-C |          | Run         |            |         |         |         |         |         |         |         |         |         |         |         |         |         |
|-------------------|----------|-------------|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Record#           | Channel# | Time        | Date       | 6       | 7       | 7       | 8       | 8       | 9       | 9       | 10      | 10      | 11      | 11      | 12      | 12      |
|                   |          |             |            | Rise #3 | Data #4 | Rise #4 | Data #5 | Rise #5 | Data #6 | Rise #6 | Data #7 | Rise #7 | Data #8 | Rise #8 | Data #9 | Rise #9 |
| 1                 |          | 8:33:33 AM  | 11/16/2012 | 1.1     | 33.8    | 12.0    | 34.0    | 12.2    | 33.2    | 11.4    | 33.5    | 11.7    | 35.6    | 13.8    | 34.1    | 12.3    |
| 3                 |          | 9:03:29 AM  | 11/16/2012 | 5.7     | 36.9    | 16.2    | 37.0    | 16.3    | 36.2    | 15.5    | 36.4    | 15.7    | 38.4    | 17.7    | 37.2    | 16.5    |
| 4                 |          | 9:33:26 AM  | 11/16/2012 | 8.3     | 41.5    | 21.6    | 41.3    | 21.4    | 40.3    | 20.4    | 41.0    | 21.1    | 42.5    | 22.6    | 41.2    | 21.3    |
| 5                 |          | 10:03:32 AM | 11/16/2012 | 9.3     | 45.3    | 25.0    | 44.9    | 24.6    | 43.8    | 23.5    | 44.7    | 24.4    | 46.4    | 26.1    | 44.8    | 24.5    |
| 6                 |          | 10:33:29 AM | 11/16/2012 | 10.3    | 48.3    | 27.8    | 48.0    | 27.5    | 46.7    | 26.2    | 47.7    | 27.2    | 49.5    | 29.0    | 47.7    | 27.2    |
| 7                 |          | 11:03:25 AM | 11/16/2012 | 11.3    | 50.5    | 30.7    | 50.3    | 30.5    | 48.9    | 29.1    | 49.9    | 30.1    | 51.9    | 32.1    | 49.9    | 30.1    |
| 8                 |          | 11:33:32 AM | 11/16/2012 | 11.7    | 52.3    | 32.0    | 52.3    | 32.0    | 50.7    | 30.4    | 51.7    | 31.4    | 53.8    | 33.5    | 51.7    | 31.4    |
| 9                 |          | 12:03:29 PM | 11/16/2012 | 13.1    | 53.4    | 34.4    | 53.5    | 34.5    | 51.9    | 32.9    | 52.9    | 33.9    | 54.7    | 35.7    | 52.7    | 33.7    |
| 10                |          | 12:33:25 PM | 11/16/2012 | 13.2    | 54.0    | 35.0    | 54.2    | 35.2    | 52.6    | 33.6    | 53.5    | 34.5    | 55.6    | 36.6    | 53.4    | 34.4    |
| 11                |          | 1:03:32 PM  | 11/16/2012 | 11.9    | 54.8    | 33.6    | 55.0    | 33.8    | 53.4    | 32.2    | 54.2    | 33.0    | 56.7    | 35.5    | 54.6    | 33.4    |
| 12                |          | 1:33:28 PM  | 11/16/2012 | 12.6    | 55.7    | 34.6    | 55.9    | 34.8    | 54.2    | 33.1    | 55.1    | 34.0    | 57.4    | 36.3    | 55.3    | 34.2    |
| 13                |          | 2:03:25 PM  | 11/16/2012 | 13.2    | 56.0    | 35.7    | 56.3    | 36.0    | 54.7    | 34.4    | 55.6    | 35.3    | 57.6    | 37.3    | 55.5    | 35.2    |
| 14                |          | 2:33:31 PM  | 11/16/2012 | 12.9    | 56.1    | 35.3    | 56.4    | 35.6    | 54.8    | 34.0    | 55.6    | 34.8    | 58.0    | 37.2    | 55.9    | 35.1    |
| 15                |          | 3:03:28 PM  | 11/16/2012 | 12.5    | 56.1    | 34.7    | 56.6    | 35.2    | 55.0    | 33.6    | 55.6    | 34.2    | 58.2    | 36.8    | 56.0    | 34.6    |
| 16                |          | 3:33:24 PM  | 11/16/2012 | 13.0    | 56.6    | 35.3    | 57.0    | 35.7    | 55.5    | 34.2    | 56.1    | 34.8    | 58.3    | 37.0    | 56.3    | 35.0    |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperatures shall show a maximum variation of  $\pm 1^{\circ}\text{C}$ .)

The interval between readings for this t

Test Numb 12269-C Run

| TC Types: | Rise #3 | Data #4 | Rise #4 | Data #5 | Rise #5 | Data #6 | Rise #6 | Data #7 | Rise #7 | Data #8 | Rise #8 | Data #9 | Rise #9 |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|           | T       |         | T       |         | T       |         | T       |         | T       |         | T       |         | T       |

## TEMPERATURE CHART(S)

| Test Numb 12269-C |             | Run        |          | 13       |          | 14       |          | 15       |        |
|-------------------|-------------|------------|----------|----------|----------|----------|----------|----------|--------|
| Record#           | Time        | Date       | Data #10 | Rise #10 | Data #11 | Rise #11 | Data #12 | Rise #12 |        |
| 1                 | 8:33:33 AM  | 11/16/2012 | 34.1     | 12.3     | 35.2     | 13.4     | 34.1     | 12.3     |        |
| 3                 | 9:03:29 AM  | 11/16/2012 | 37.4     | 16.7     | 38.1     | 17.4     | 37.1     | 16.4     |        |
| 4                 | 9:33:26 AM  | 11/16/2012 | 41.9     | 22.0     | 42.5     | 22.6     | 41.4     | 21.5     |        |
| 5                 | 10:03:32 AM | 11/16/2012 | 45.6     | 25.3     | 46.4     | 26.1     | 45.0     | 24.7     |        |
| 6                 | 10:33:29 AM | 11/16/2012 | 48.6     | 28.1     | 49.6     | 29.1     | 48.1     | 27.6     |        |
| 7                 | 11:03:25 AM | 11/16/2012 | 50.9     | 31.1     | 52.1     | 32.3     | 50.4     | 30.6     |        |
| 8                 | 11:33:32 AM | 11/16/2012 | 52.6     | 32.3     | 54.1     | 33.8     | 52.3     | 32.0     |        |
| 9                 | 12:03:29 PM | 11/16/2012 | 53.6     | 34.6     | 55.2     | 36.2     | 53.5     | 34.5     |        |
| 10                | 12:33:25 PM | 11/16/2012 | 54.2     | 35.2     | 56.0     | 37.0     | 54.2     | 35.2     |        |
| 11                | 1:03:32 PM  | 11/16/2012 | 55.3     | 34.1     | 57.0     | 35.8     | 55.2     | 34.0     |        |
| 12                | 1:33:28 PM  | 11/16/2012 | 56.1     | 35.0     | 57.8     | 36.7     | 56.0     | 34.9     |        |
| 13                | 2:03:25 PM  | 11/16/2012 | 56.2     | 35.9     | 58.1     | 37.8     | 56.4     | 36.1     |        |
| 14                | 2:33:31 PM  | 11/16/2012 | 56.5     | 35.7     | 58.4     | 37.6     | 56.6     | 35.8     |        |
| 15                | 3:03:28 PM  | 11/16/2012 | 56.5     | 35.1     | 58.5     | 37.1     | 56.8     | 35.4     |        |
| 16                | 3:33:24 PM  | 11/16/2012 | 56.9     | 35.6     | 58.8     | 37.5     | 57.1     | 35.8     | Stable |

Stability Criteria for ANSI/IEEE C37.23 :

Stability is reached when the temperatu

The interval between readings for this t

Test Numb 12269-C Run

| TC Types: | Data #10 | Rise #10 | Data #11 | Rise #11 | Data #12 | Rise #12 |
|-----------|----------|----------|----------|----------|----------|----------|
|           | T        |          | T        |          | T        |          |