**The UTILCO Company**
**4730 Madison Rd**
**Cincinnati, OH 45227**

**Test Report:** 09-117



**Date:** 3/3/2010
**Product:** PED-350SS Redesign (3) Hole
**Type Test:** ANSI C119. 4 Class A
**Test Facility:** UTILCO

**Tested By:** Bryan Donell **Date:** 21-Sep-09

**Supervisor:** Robert Westbrook **Date:** 3/3/2010

**Reviewed By:** Donald J. Smiley **Date:** 3/3/2010

**Purpose:**

| | | |
|---|---|---|
| Qualification Test – | Part # / Cat # | **PED-350SS Redesign (3) Hole** |
| | Main wire range | **350 kcmil - #12** |
| | Tap Wire Range | **-** |
| | Connector Material | **6061 T6** |
| | Screw (wire binding) | **E6132** **5/16" Internal Hex drive** |
| | Wire Binding Screw Torque | **240** in-lbs |
| | Lubricant (Screws) | **616 Safety Film & DTE-24** |
| | Plating- Body | **None** |
| | Mounting screws | **N/A** |
| | Mounting Torque | **N/A** in-lbs |
| | Wire Size Used for testing | **350 kcmil** |
| | Conductor Strength | |
| | Manufacturer (Wire) | |
| | Insulation Type, Thickness | **None** |

**Device:**

**UTILCO's PED-350SS Redesign (3) Hole** is made from extruded High strength aluminum.
The 5/16" Internal Hex drive screw is manufactured from Aluminum and is lubricated with 616 Safety Film & DTE-24.

**Procedure:**

**The PED-350SS Redesign (3) Hole** Connector was tested using bare Aluminum conductors.
The conductors were wire brushed and DE-OX V was applied.
The 5/16" Internal Hex drive screw was torqued to: **240** in-lbs

**Four PED-350SS Redesign (3) Holes** were used in this test. Thermocouples were placed on the wire entry area.
Conductor Length: 24"

The test consisted of 500 cycles. Each Cycle had **1.5** Hours **"On"** Time and **1.5** hours **"Off"** time
The test current was raised over the first 25 cycles so the control conductor attained a 100° -105°C temperature rise over ambient temperature.

The test current used was **603** amperes.

**Results:**

**UTILCO's PED-350SS Redesign (3) Hole** Connector successfully completed the ANSI Heat Cycle test using bare aluminum conductors. The connector temperatures did not exceed the temperature of the control conductor, stability was within +/- 10 and the resistance of the connections did not exceed ± 5% of the average resistance.

The maximum stability value was: **5.4**

**Condition after testing:**

All Samples appeared to be undamaged after testing

See data sheets and charts attached for the test details.

# ANSI C119. 4

## Current Cycle Data Sheet

**Class of Test** A

**Test Method:** CCT

**Part Tested:** PED-350SS Redesign (3) Ho | **Date Started:** 9/21/09 | **Date Completed:** 11/23/09

**Project #** 0

**Cable (main)** Size 350 kcmil Type AL Length 24"

**Cable (tap)** Size 0 Type 0 Length 0

**Conductor Preparation:** Compounded? Yes; Wire Brushed? Yes

**Current Cycle:** On Period (Hrs) 1.5 | Off Period (Hrs) 1.5 | Test Current: 603 Amps

**Test #** 09-117

**Compression Connector**

Crimp tool: 0 Die# 0

Number of crimps: Main 0 Tap 0

**Mechanical Connector**

Screw E6132 1 screw/bolt (s) per conductor:

Torque: 240 in-lbs

Mounting Bolts N/A Torq: N/A in-lbs

**Compound Used** DE-OX V

| Measurements Points | Cycle Number | Ambient (°C) | Control Conductor (°C) | Connector Temp (°C) | | | | Temperature Difference (°C) | | | | Stability Factor (Si) | | | | Connector Resistance (Measured) Micro Ohms (μΩ) | | | | | Connector Resistance (Corrected to 20C) Micro Ohms (μΩ) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | C1 | C2 | C3 | C4 | C1 | C2 | C3 | C4 | C1 | C2 | C3 | C4 | Amb | C1 | C2 | C3 | C4 | C1 | C2 | C3 | C4 |
| 1 | 26 | 23 | 126 | 123 | 123 | 116 | 116 | 3 | 3 | 10 | 10 | 1.7 | 0.8 | 4.6 | 4.8 | 22.0 | 163.7 | 154.9 | 159.2 | 159.8 | 162.5 | 153.8 | 158.1 | 158.7 |
| 2 | 50 | 22 | 133 | 129 | 130 | 117 | 117 | 4 | 3 | 16 | 16 | 0.7 | 0.8 | 1.4 | 1.2 | 22.0 | 167.6 | 156.2 | 163.0 | 161.2 | 166.4 | 155.1 | 161.8 | 160.0 |
| 3 | 75 | 22 | 131 | 125 | 126 | 119 | 119 | 6 | 5 | 12 | 12 | 1.3 | 1.2 | 2.6 | 2.8 | 23.0 | 165.6 | 156.0 | 161.0 | 161.0 | 163.8 | 154.3 | 159.3 | 159.2 |
| 4 | 100 | 23 | 130 | 128 | 129 | 120 | 120 | 2 | 1 | 10 | 10 | 2.7 | 2.8 | 4.6 | 4.8 | 23.0 | 168.1 | 157.1 | 163.5 | 162.1 | 166.3 | 155.4 | 161.7 | 160.4 |
| 5 | 125 | 23 | 131 | 129 | 130 | 115 | 115 | 2 | 1 | 16 | 16 | 2.7 | 2.8 | 1.4 | 1.2 | 22.0 | 167.4 | 158.3 | 162.8 | 163.3 | 166.2 | 157.2 | 161.6 | 162.2 |
| 6 | 165 | 21 | 135 | 126 | 127 | 119 | 119 | 9 | 8 | 16 | 16 | 4.3 | 4.2 | 1.4 | 1.2 | 23.0 | 168.7 | 158.8 | 164.0 | 163.9 | 166.9 | 157.1 | 162.3 | 162.1 |
| 7 | 205 | 22 | 126 | 121 | 122 | 106 | 106 | 5 | 4 | 20 | 20 | 0.3 | 0.2 | 5.4 | 5.2 | 23.0 | 167.3 | 158.1 | 162.7 | 163.1 | 165.5 | 156.4 | 160.9 | 161.4 |
| 8 | 245 | 24 | 126 | 122 | 123 | 113 | 113 | 4 | 3 | 13 | 13 | 0.7 | 0.8 | 1.6 | 1.8 | 22.0 | 161.5 | 153.6 | 157.1 | 158.5 | 160.3 | 152.5 | 155.9 | 157.3 |
| 9 | 325 | 23 | 126 | 122 | 123 | 113 | 112 | 4 | 3 | 13 | 14 | 0.7 | 0.8 | 1.6 | 0.8 | 23.0 | 162.4 | 155.7 | 157.9 | 160.6 | 160.7 | 154.0 | 156.2 | 158.9 |
| 10 | 405 | 21 | 132 | 127 | 127 | 114 | 113 | 5 | 5 | 18 | 19 | 0.3 | 1.2 | 3.4 | 4.2 | 23.0 | 165.8 | 157.1 | 161.2 | 162.1 | 164.0 | 155.4 | 159.5 | 160.4 |
| 11 | 500 | 23 | 137 | 129 | 131 | 120 | 120 | 8 | 6 | 17 | 17 | 3.3 | 2.2 | 2.4 | 2.2 | 22.0 | 166.2 | 156.3 | 161.6 | 161.3 | 165.0 | 155.2 | 160.5 | 160.1 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
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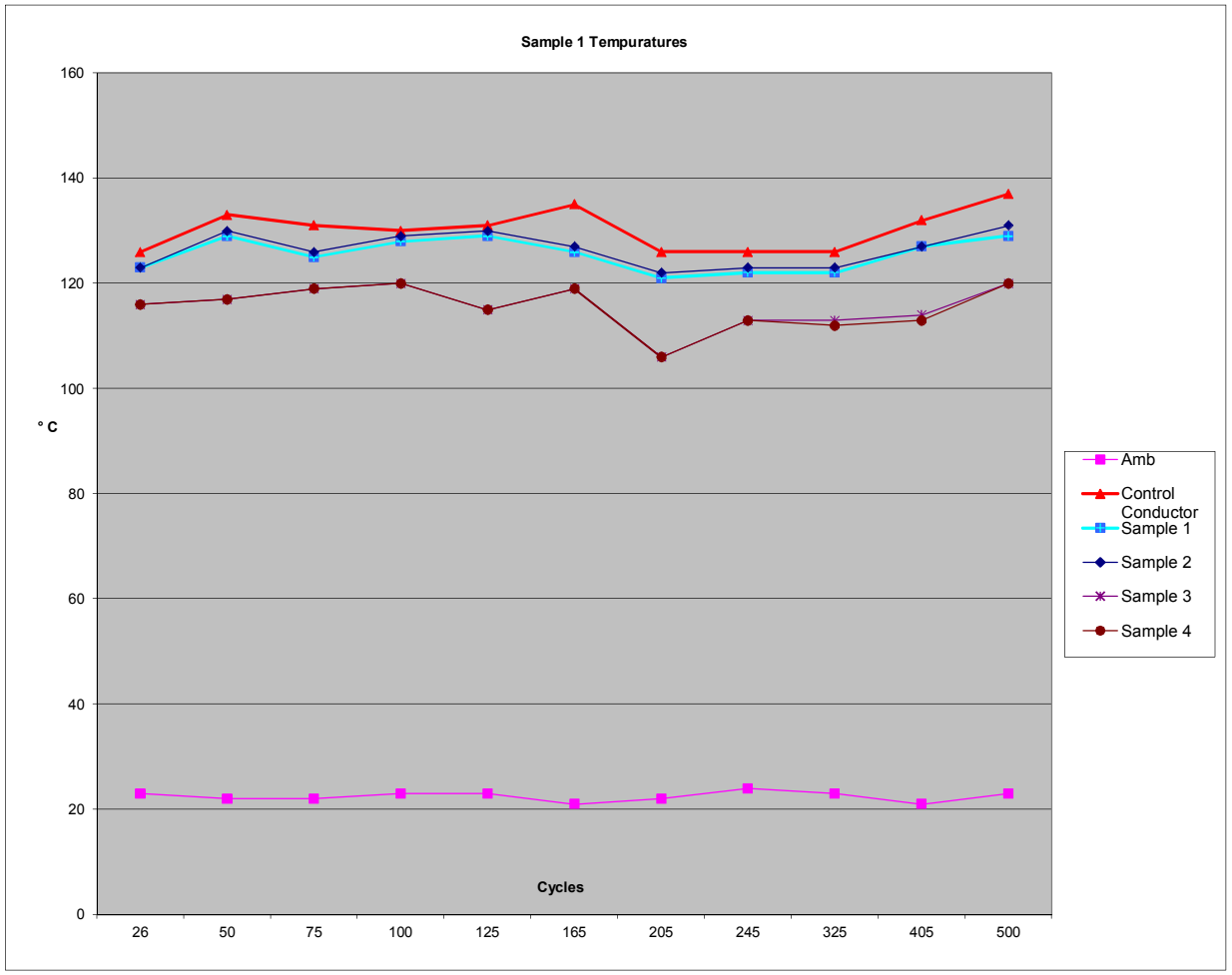
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Average Temperature Difference | | | | 4.7 | 3.8 | 14.6 | 14.8 | | | | | | | | | | | | | |
| | | | | Maximum Stability Factor | | | | | | | | 4.3 | 4.2 | 5.4 | 5.2 | | | | | | | | | |

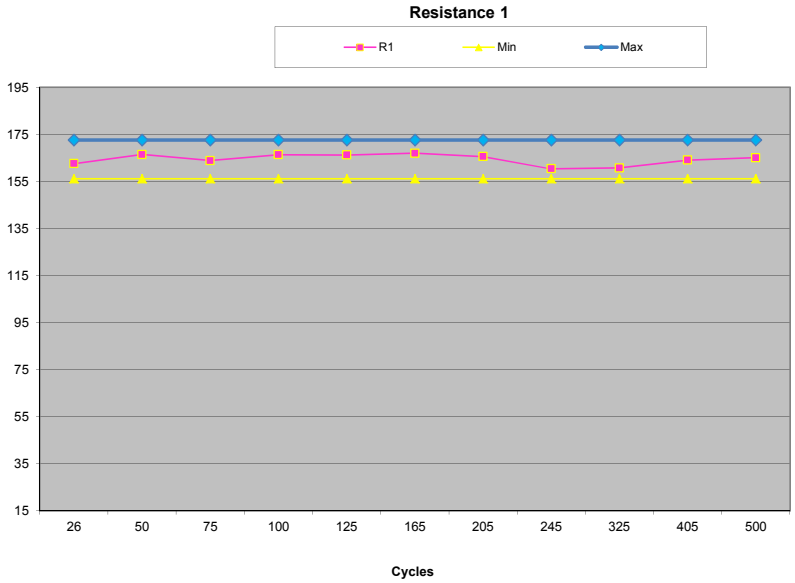
| | | | | |
|---|---|---|---|---|
| Average Resistance | 164.3 | 155.1 | 159.8 | 160.1 |
| Min Acceptable Resistance | 156.1 | 147.4 | 151.8 | 152.1 |
| Max Allowable Resistance | 172.6 | 162.9 | 167.8 | 168.1 |

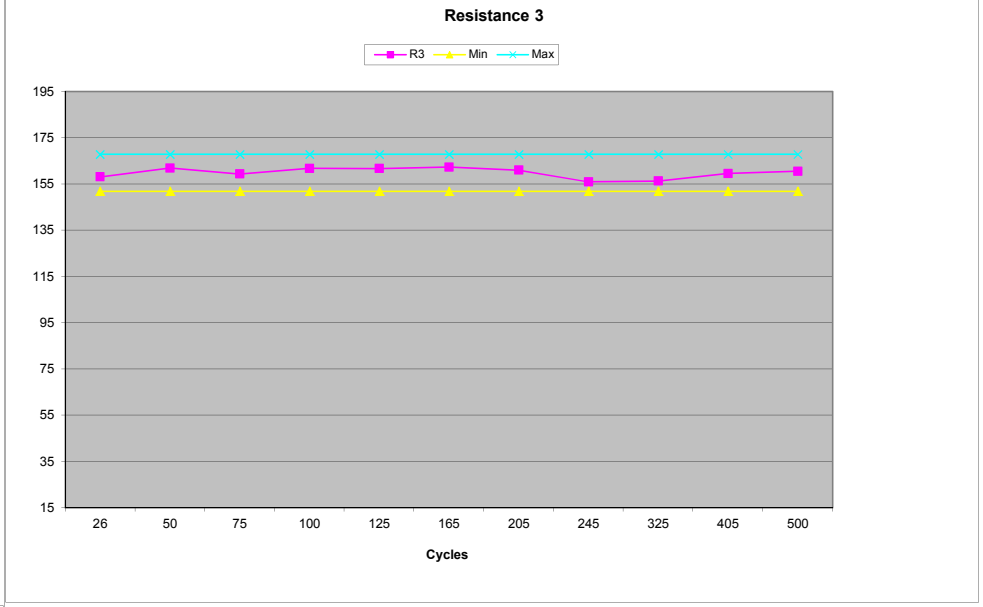
1. The connector temperature cannot exceed the control conductor temperature

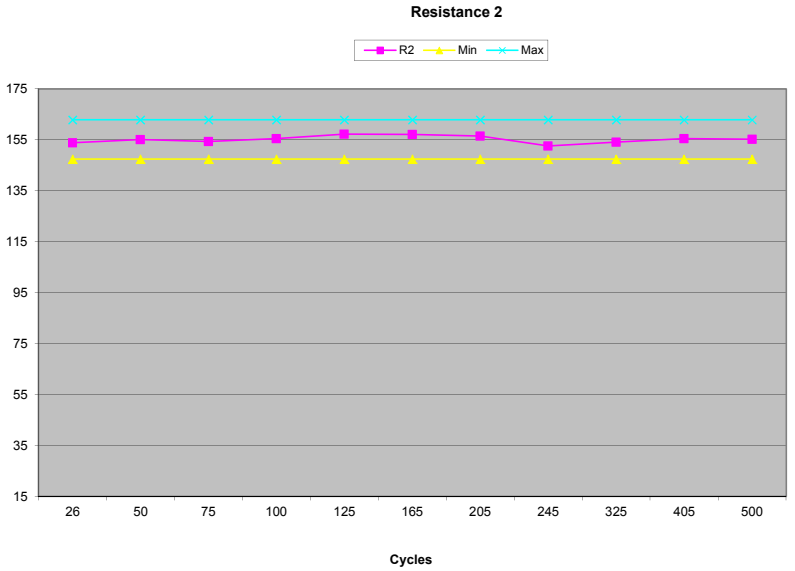
2. The stability factor "Si" shall not exceed 10 for each of the connector temperature measurements recorded at the specified intervals.

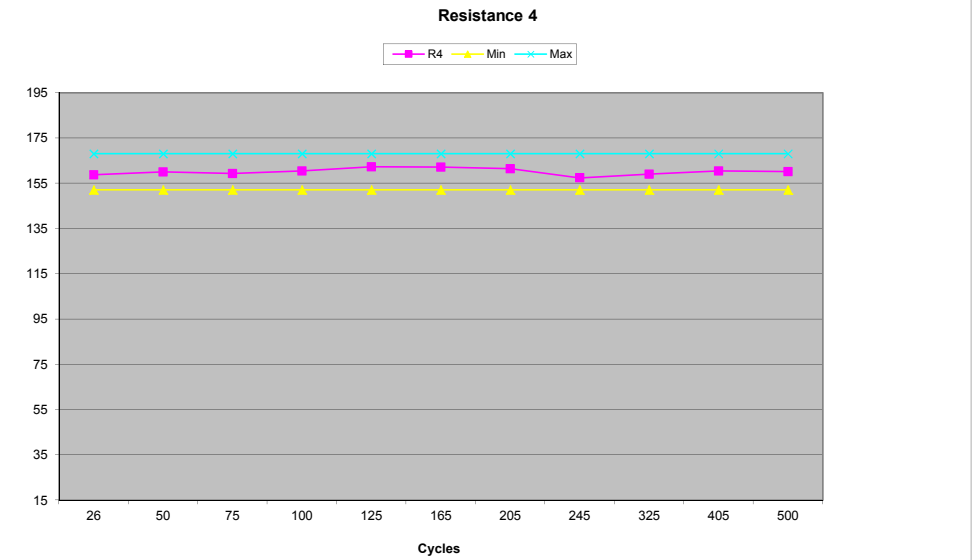
3. The resistance of the connectors tested shall not vary by more than 5% from the average of the measured values.

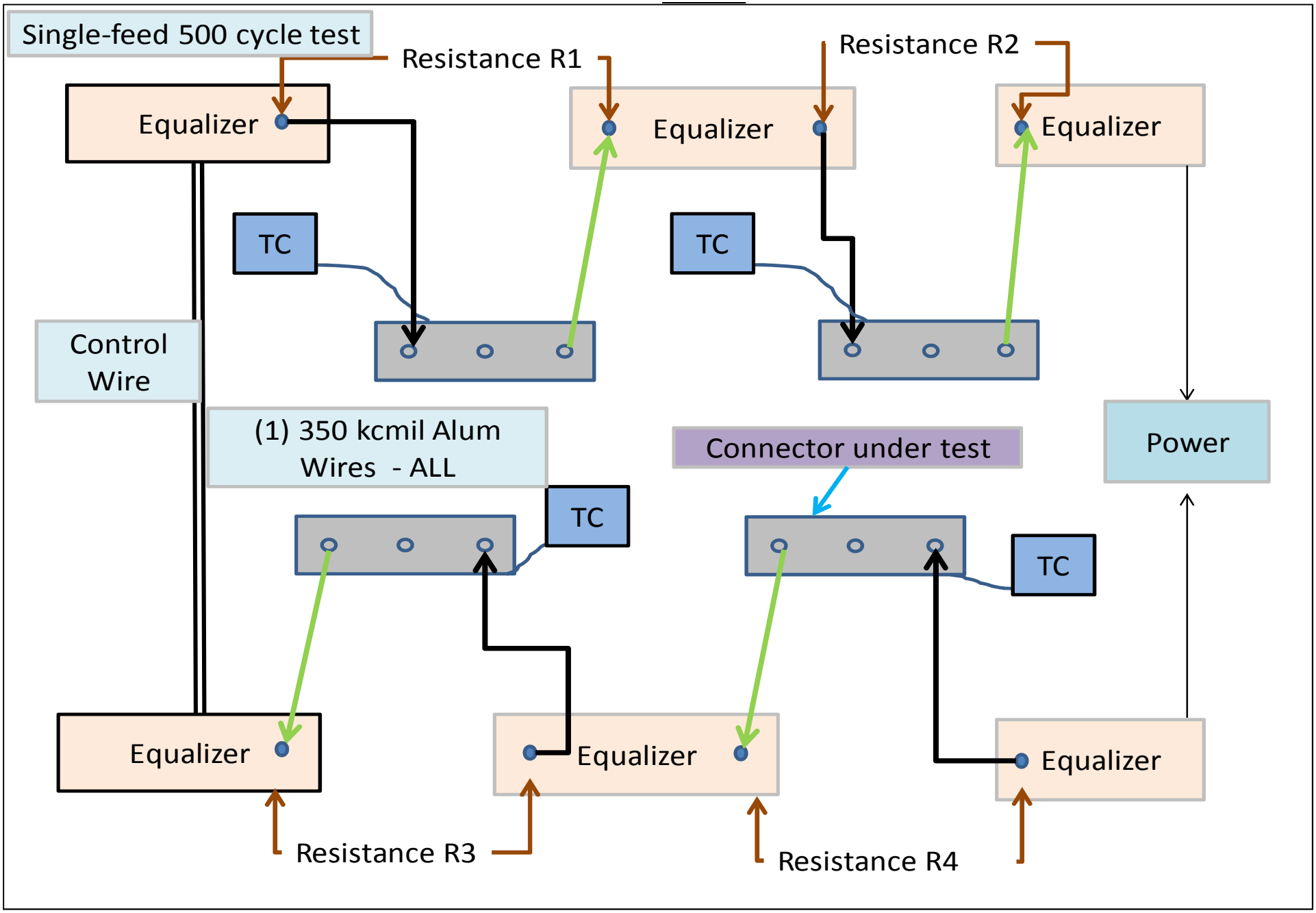

Sample 1 Tempuratures
160
140
120
100
80
60
40
20
0
° C
Cycles
26
50
75
100
125
165
205
245
325
405
500
Amb
Control
Conductor
Sample 1
Sample 2
Sample 3
Sample 4


Resistance 1
R1
Min
Max
195
175
155
135
115
95
75
55
35
15
26
50
75
100
125
165
205
245
325
405
500
Cycles


Resistance 3
R3
Min
Max
195
175
155
135
115
95
75
55
35
15
26
50
75
100
125
165
205
245
325
405
500
Cycles


Resistance 2
R2
Min
Max
175
155
135
115
95
75
55
35
15
26
50
75
100
125
165
205
245
325
405
500
Cycles


Resistance 4
R4
Min
Max
195
175
155
135
115
95
75
55
35
15
26
50
75
100
125
165
205
245
325
405
500
Cycles


Single-feed 500 cycle test
Resistance R1
Resistance R2
Equalizer
Equalizer
Equalizer
TC
TC
Control Wire
(1) 350 kcmil Alum Wires - ALL
Connector under test
Power
TC
TC
Equalizer
Equalizer
Equalizer
Resistance R3
Resistance R4