

Sample

Infrared Report

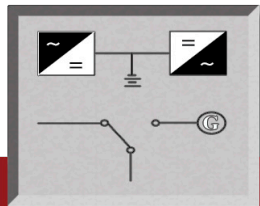
With regard to

Project Name

Address One

Address Two

City, ST Zip



GENELCO INC

Commissioning/Testing/Controls

A GLOBAL PARTNER IN CRITICAL PERFORMANCE

10443 North Cave Creek Road Phoenix AZ 85020

(602) 749-8124 Phone (602) 749-8126 Fax

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Date:

Job #

INFRARED THERMOGRAPHY INFORMATION

The Infrared Survey which provides the data for this report was performed using a FLIR Model T400 IR Camera.

Infrared Thermography will detect numerous faults or problems. However, there are several considerations to be taken into account when reviewing IR Scan results:

1. An IR Scan can detect ONLY those problems which manifest themselves as an elevated temperature of the conductor or other material being viewed, relative to either A) Other Conductors carrying the same current; or, B) The same conductor at rest (de-energized). Electrical problems (loose connections, corrosion, under-sized conductors) will only be exposed if voltage and current are present during the scan. This principal is as basic as Ohm's Law. At least 25% of the rated load is needed to reveal even the slightest problem. Experience has taught us that, except for extreme cases, temperature stability is achieved approximately 15 minutes after power is applied.
2. The Infrared energy radiated by an object varies greatly depending on the surface of the object. The ability of an object to emit IR waves is called "Emissivity". Emissivity is a relative term, on a scale of 0 to 1. An object which radiates little or no IR, such as polished copper, has an Emissivity approaching 0. A surface such as an electrical tape or non-metallic paint approaches 1. Since a typical image viewed or recorded includes numerous surfaces, each having a different Emissivity factor, objects may appear hotter or cooler than they really are. It is only through detailed analysis and understanding of this principle that we can determine the exact temperature of a specific spot.
3. The colors used to depict temperature gradients are artificially introduced to a grey-on-grey image. Each pixel contains data representing the level of infrared received by that pixel when the image was recorded. Via software, we assign a color to each level. Since the infrared level recorded does not necessarily represent the true temperature of the surface, and since the colors are arbitrarily assigned, a color image is not necessarily a true depiction. The colors are used to shown 'Relative' differences in temperature. For example, 2 conductors carrying the same current SHOULD be at the same temperature and, therefore, be the same color. If one leg is 'brighter' than an adjacent conductor it usually indicates that a loose or corroded connection exists. If both conductors are the same intensity, it is possible that they are equally BAD, as well as equally good. Therefore, care must be taken not to misinterpret IR images.

Inspection Site Information

Customer

Address

On Site POC or Customer POC

Reason For Infrared Scanning

Conditions

Thermographer

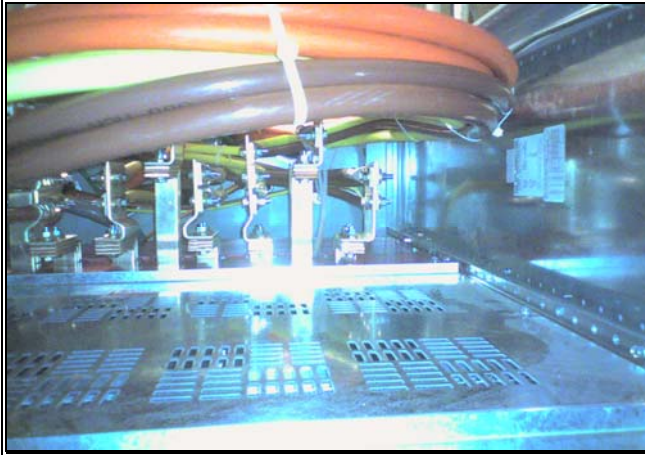


Summary of Inspection

Equipment	Component	Fault	Recommendations	Page Number
Main SWBD	UPS A Feeder Breaker Connections	No Faults Found	None Needed	4
UPS A	Input Connections & Breaker (Q1)	No Faults Found	None Needed	5
UPS A	Output Buss Connections	No Faults Found	None Needed	6
UPS A	Caps & Buss Connections	No Faults Found	None Needed	7
UPS A	Q5N Output Breaker Connections	No Faults Found	None Needed	8
UPS A	Output Connections to PDUs	No Faults Found	None Needed	9
PDU A-1	Main Input Breaker Connections	No Faults Found	None Needed	10
PDU A-1	Main Input Feeder Connections	No Faults Found	None Needed	11
PDU A-1	Transformer Connections	No Faults Found	None Needed	12
PDU A-1	Subfeed Breaker 1 Connections	No Faults Found	None Needed	13
PDU A-1	Subfeed Breaker 2 Connections	No Faults Found	None Needed	14
PDU A-1	Subfeed Breaker 3 Connections	No Faults Found	None Needed	15
PDU A-1	Subfeed Breaker 4 Connections	No Faults Found	None Needed	16
UPS A	Static Feed Connections	No Faults Found	None Needed	17
Main SWBD	Maint Bypass Feeder Breaker Connections	No Faults Found	None Needed	18
UPS A	Maintenance Bypass Breaker	No Faults Found	None Needed	19
UPS A String 1	Battery Disconnect	No Faults Found	None Needed	20

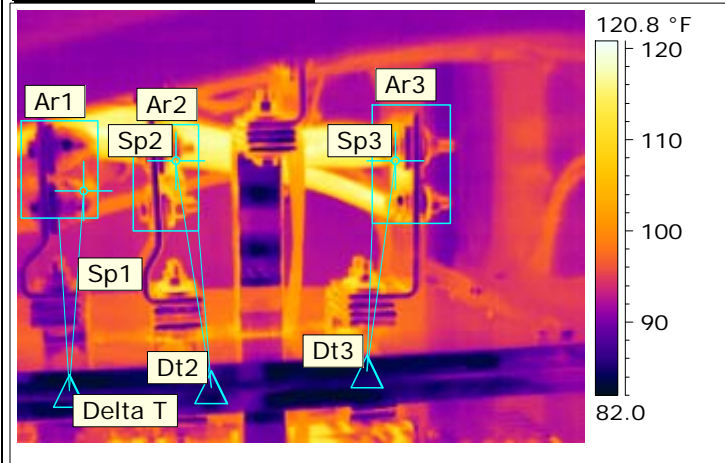


Photo and Identification



Equipment	Main SWBD 402
Component	UPS A Feeder Breaker Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	118.2 °F
Ar2 Max. Temperature	119.5 °F
Ar3 Max. Temperature	117.3 °F
Sp1 Temperature	98.5 °F
Sp2 Temperature	112.2 °F
Sp3 Temperature	111.2 °F
Delta T Value	19.7
Dt2 Value	7.3
Dt3 Value	6.1

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

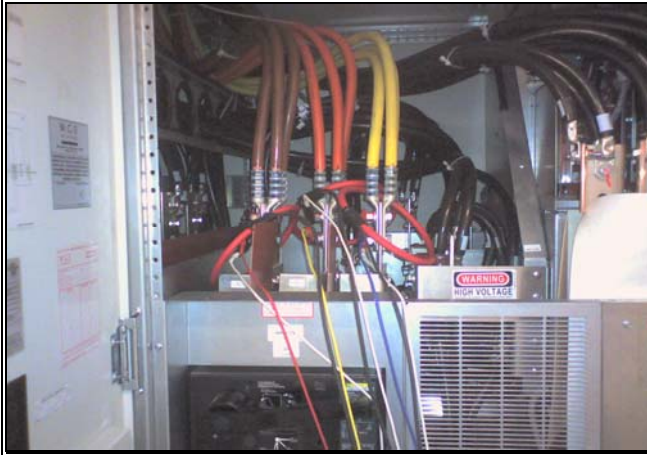
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date: N/A

Comment:.....N/A.....

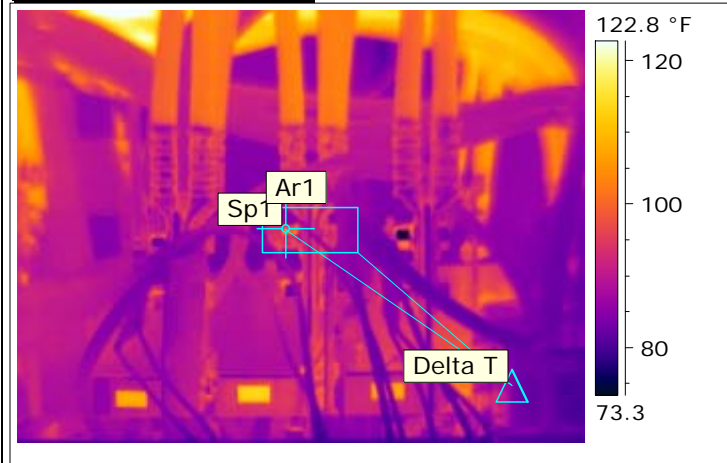


Photo and Identification



Equipment	UPS A
Component	Input Connections & Breaker (Q1)
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	104.0 °F
Sp1 Temperature	100.8 °F
Delta T Value	3.2

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

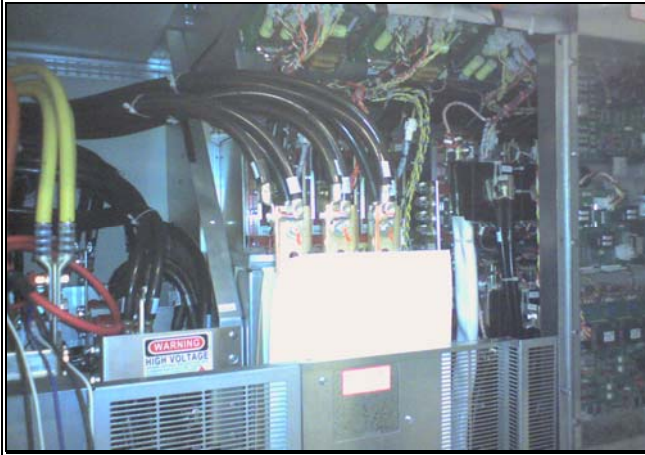
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date: N/A

Comment:.....N/A.....

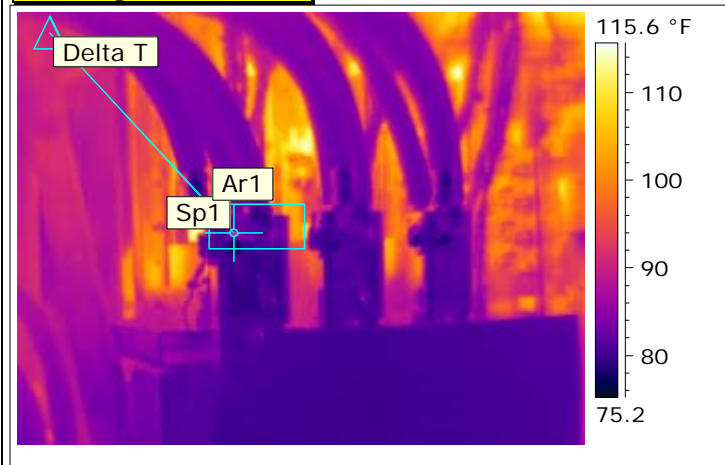


Photo and Identification



Equipment	UPS A
Component	Output Buss Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	112.5 °F
Sp1 Temperature	90.8 °F
Delta T Value	21.7

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

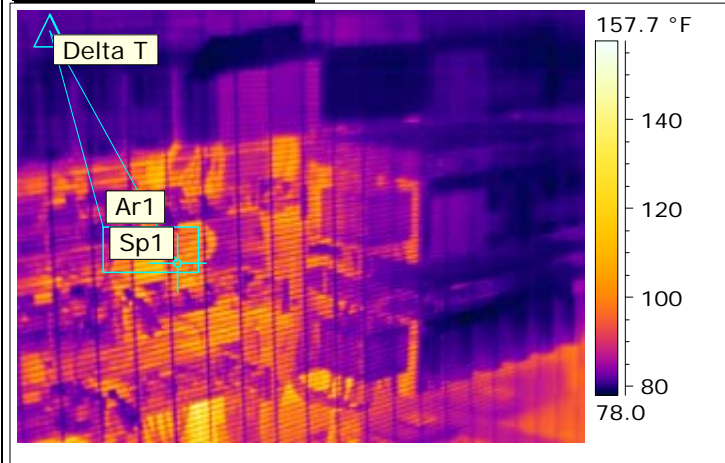


Photo and Identification



Equipment	UPS A
Component	Caps & Buss Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	125.6 °F
Sp1 Temperature	104.9 °F
Delta T Value	20.7

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

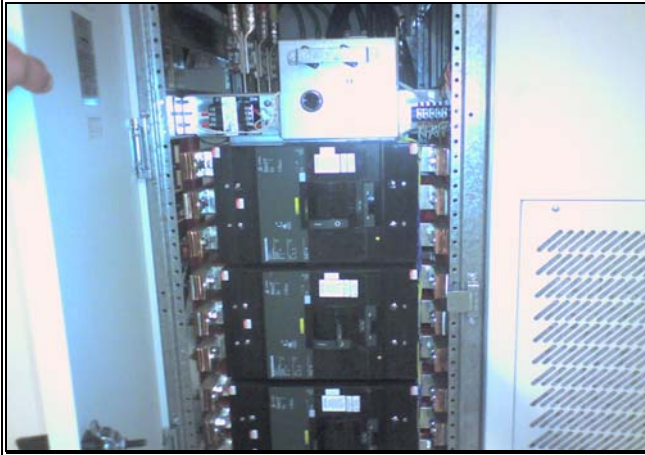
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date: N/A

Comment:.....N/A.....

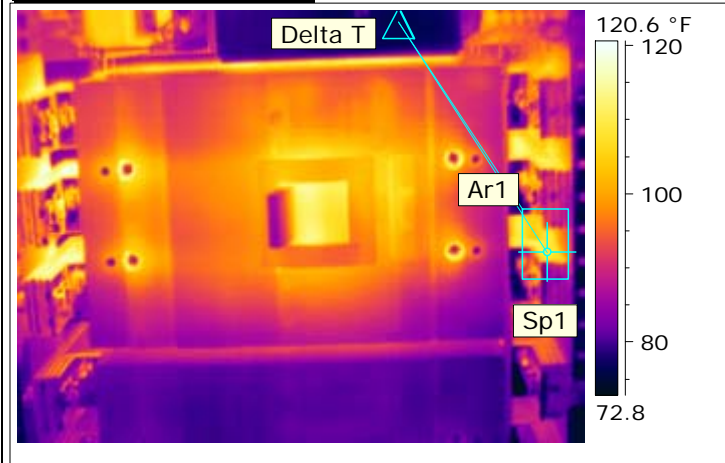


Photo and Identification



Equipment	UPS A
Component	Q5N Output Breaker Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	113.3 °F
Sp1 Temperature	108.9 °F
Delta T Value	4.4

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

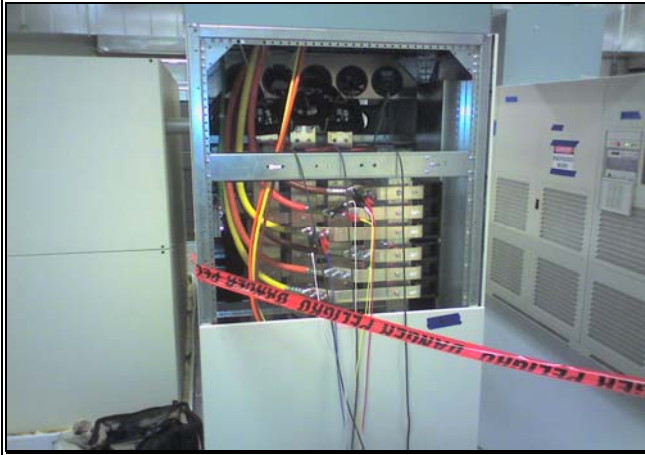
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date: N/A

Comment:.....N/A.....

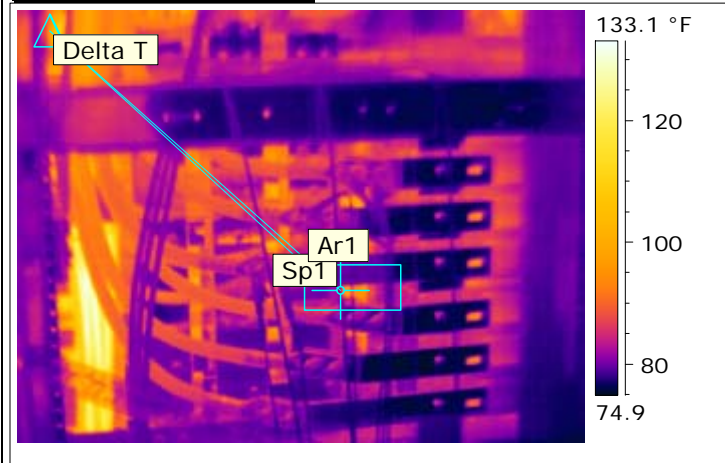


Photo and Identification



Equipment	UPS A
Component	Output Connections to PDUs
View	Direct
Condition of Equipment	Loaded
Actual Load	281kW Each
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	101.7 °F
Sp1 Temperature	89.2 °F
Delta T Value	12.4

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

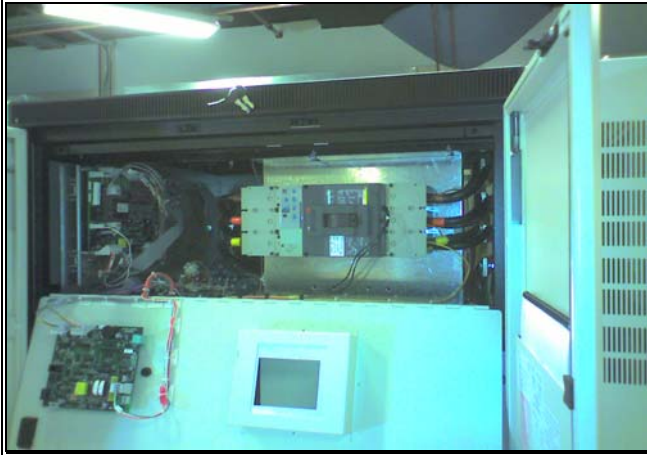
Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

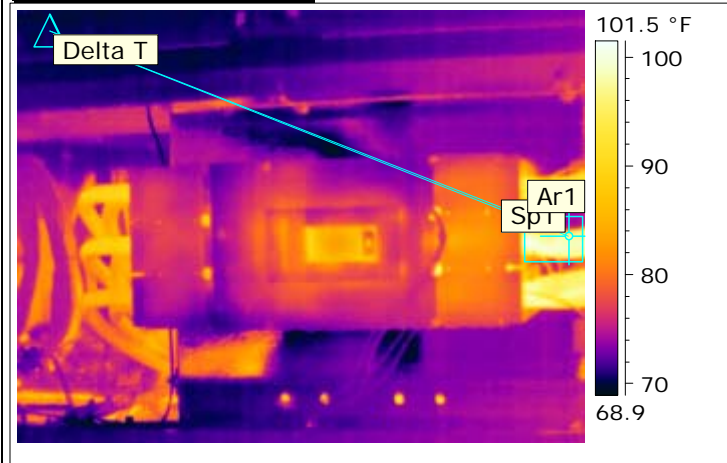


Photo and Identification



Equipment	PDU 402A-1
Component	Main Input Breaker Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	281kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	101.8 °F
Sp1 Temperature	97.8 °F
Delta T Value	4.1

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

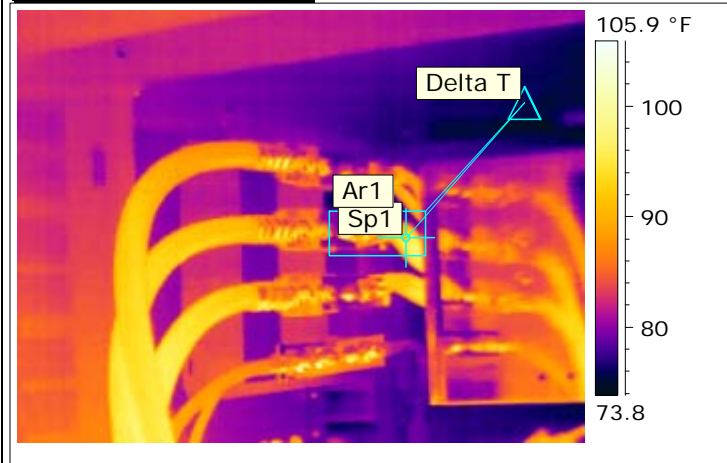


Photo and Identification



Equipment	PDU 402A-1
Component	Main Inout Feeder Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	281kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	98.9 °F
Sp1 Temperature	94.6 °F
Delta T Value	4.2

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

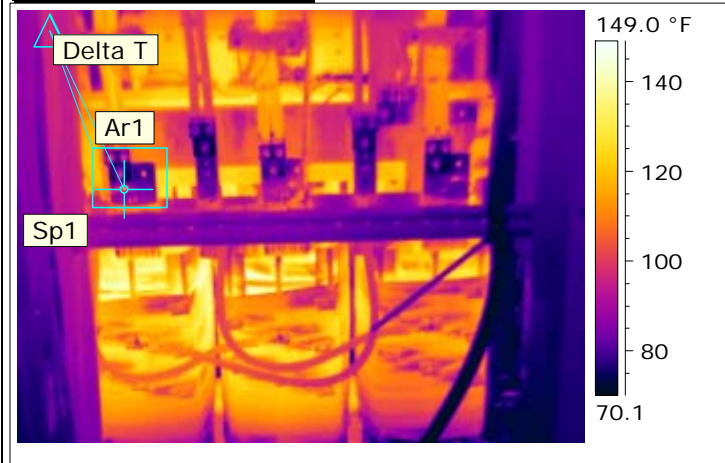


Photo and Identification



Equipment	PDU 402A-1
Component	Transformer Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	281kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	127.9 °F
Sp1 Temperature	106.9 °F
Delta T Value	21.0

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

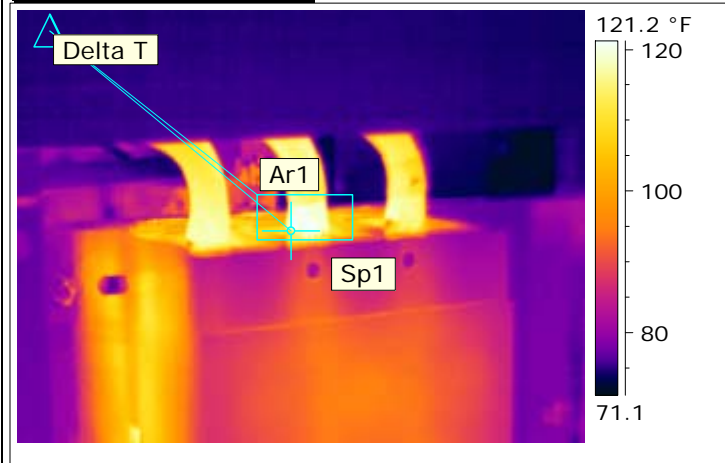


Photo and Identification



Equipment	PDU 402A-1
Component	Subfeed Breaker 1 Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	60kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	121.4 °F
Sp1 Temperature	111.5 °F
Delta T Value	9.9

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

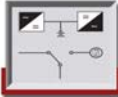
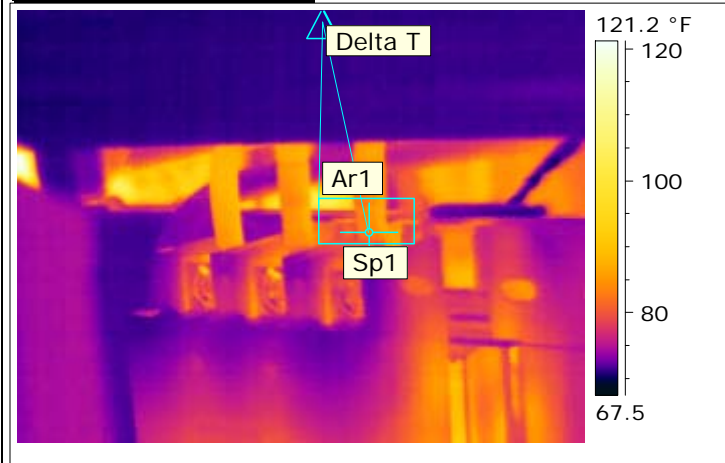


Photo and Identification



Equipment	PDU 402A-1
Component	Subfeed Breaker 2 Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	60kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	103.6 °F
Sp1 Temperature	83.3 °F
Delta T Value	20.2

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

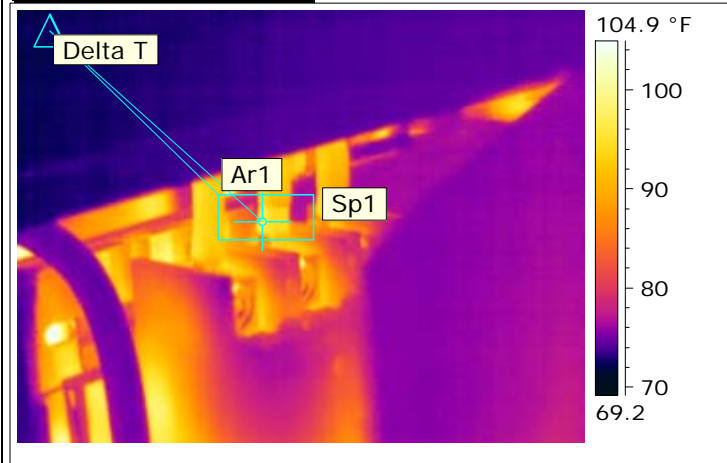


Photo and Identification



Equipment	PDU 402A-1
Component	Subfeed Breaker 3 Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	60kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	97.4 °F
Sp1 Temperature	96.5 °F
Delta T Value	0.9

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

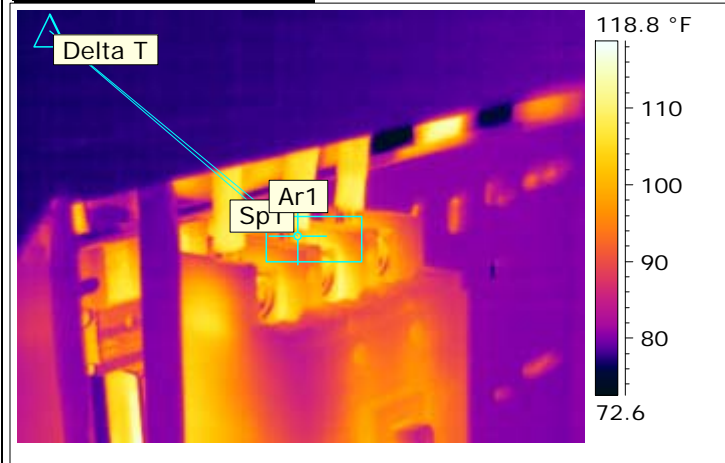


Photo and Identification



Equipment	PDU 402A-1
Component	Subfeed Breaker 4 Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	100kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	112.4 °F
Sp1 Temperature	108.7 °F
Delta T Value	3.7

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

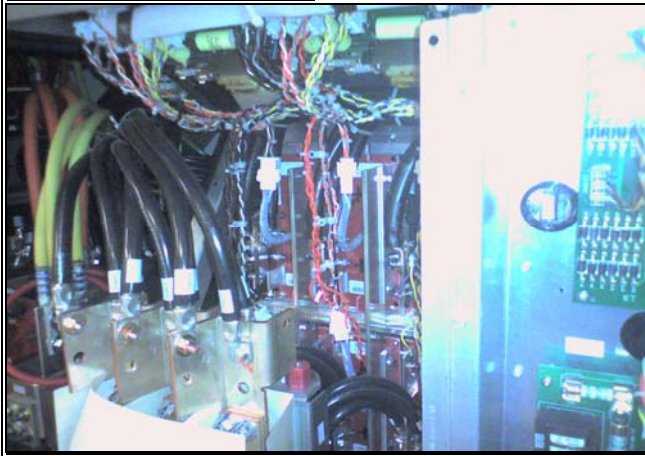
Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

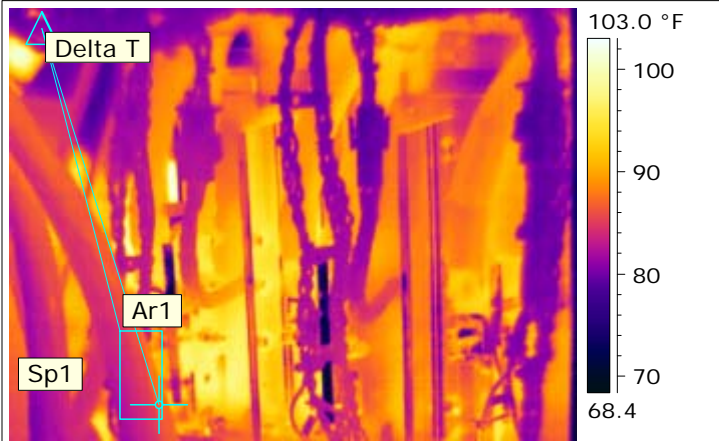


Photo and Identification



Equipment	UPS A
Component	Static Feed Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	93.5 °F
Sp1 Temperature	87.0 °F
Delta T Value	6.5

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

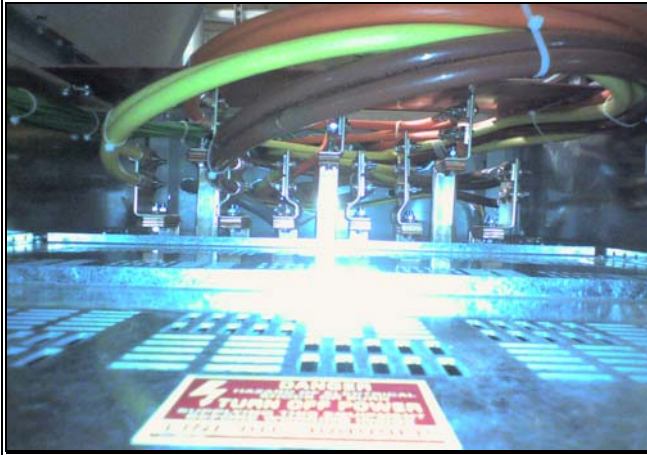
Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

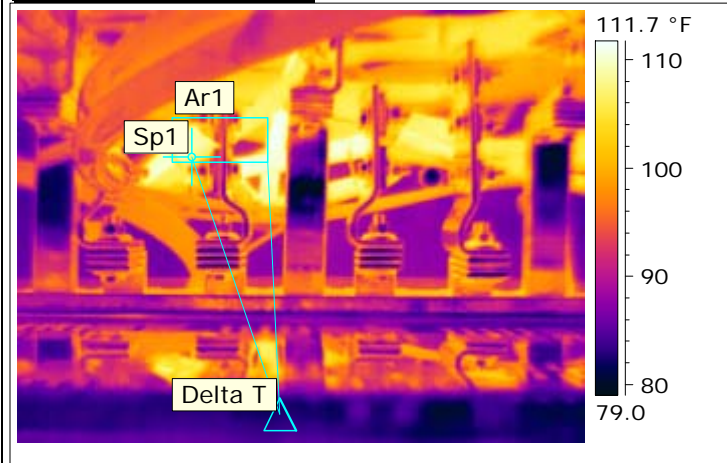


Photo and Identification



Equipment	Main SWBD 402
Component	Maint Bypass Feeder Breaker Connections
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	110.7 °F
Sp1 Temperature	106.9 °F
Delta T Value	3.8

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

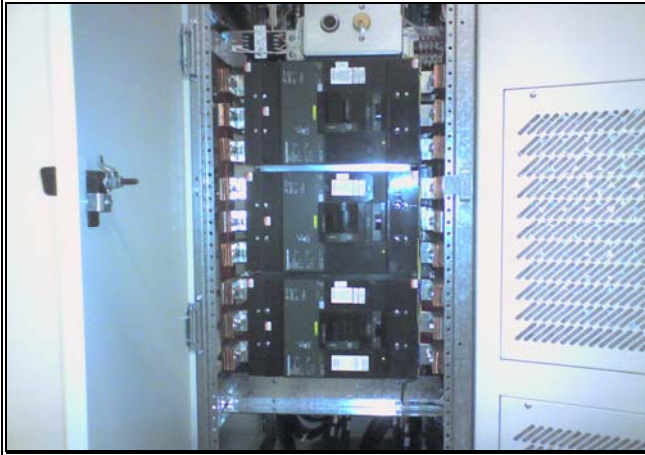
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date: N/A

Comment:.....N/A.....

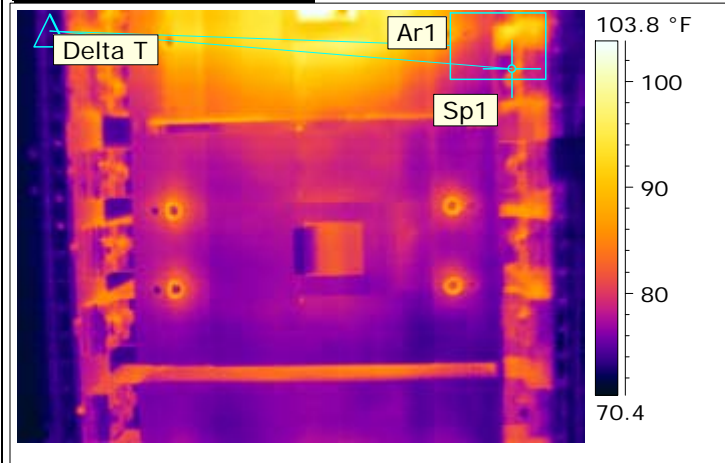


Photo and Identification



Equipment	UPS A
Component	Maintenance Bypass Breaker
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	95.1 °F
Sp1 Temperature	84.3 °F
Delta T Value	10.8

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....

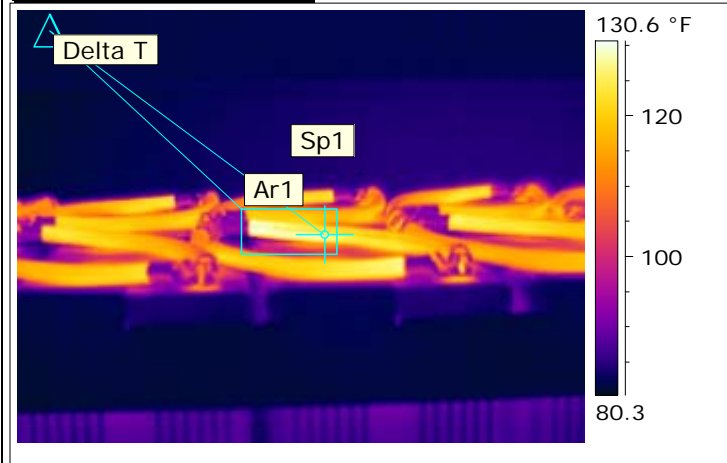


Photo and Identification



Equipment	UPS A String 1
Component	Battery Disconnect
View	Direct
Condition of Equipment	Loaded
Actual Load	564kW
Fault	No Faults Found
Recommendations	None Needed

Thermogram 5/19/2010



Ar1 Max. Temperature	130.8 °F
Sp1 Temperature	127.6 °F
Delta T Value	3.3

Analysis & Recommended action:

No action is required at this time.

Inspected by :

Signature:

date: **05/19/2010**

Repaired by:N/A.....

date: N/A

Comment:.....N/A.....