

Ámbito de subasta: Circuito ATS y mantenimiento subestación #2  
Edificio World Plaza, San Juan, P.R.



**OFICINA DE ADMINISTRACIÓN DE TRIBUNALES**

**ÁMBITO DE SUBASTA:**

**NUEVO CIRCUITO PARA INTERRUPTOR DE TRANSFERENCIA AUTOMÁTICA  
Y MANTENIMIENTO PREVENTIVO A LA SUBESTACIÓN #2  
EDIFICIO WORLD PLAZA  
268 AVE. LUIS MUÑOZ RIVERA, SAN JUAN, P.R. 00918**

**PREPARADO POR:  
JAG ENGINEERS, P.S.C.**

**Asunto:** Ámbito de servicio para mejorar el circuito que alimenta un interruptor de transferencia automática (ATS) existente. Se realizará los trabajos de mantenimiento preventivo en la Subestación #2.

**Instalaciones:** Edificio World Plaza, Hato Rey

**Dirección:** 268 Ave. Luis Muñoz Rivera, San Juan, 00918

### **Descripción del sistema eléctrico:**

1. Un interruptor de transferencia automática (ATS) existente requiere de un nuevo circuito de alimentación. Se reemplazará el breaker del circuito y los alimentadores correspondientes.
2. Mantenimiento preventivo en la Subestación #2.

### **Trabajos requeridos:**

1. Instalar nuevo breaker y alimentadores para el interruptor de transferencia automática (ATS) existente.
  - a. Refiérase a la hoja de instrucciones: "PRELIMINARY ATS FEEDER ROUTE", Anejo 1.
  - b. El dueño suplirá el cable para la instalación y el nuevo breaker para sustituir el existente. Todo lo demás es responsabilidad del contratista.
  - c. El interruptor existente de 800 Amp/3P será reemplazado por un nuevo interruptor de 1000 Amp/3P. El nuevo interruptor será suministrado por el dueño. El interruptor existente se encuentra identificado como: "INTERRUPTOR DE TRANSFERENCIA (ATS) PLANTA CATERPILLAR BPPR".
  - d. El nuevo alimentador para el ATS consiste de tres (3) juegos, cada uno de 4-500 KCMILL-(THHN) & 1#2 AWG (GND)-THHN en un conducto EMT de 4". El nuevo alimentador será suministrado por el dueño, el contratista debe suministrar el conducto y otros elementos. Se incluye detalle de montaje en trapecio del conducto.
  - e. El ATS existente es a 480V, 1,000 AMP, 3PH, y se mantendrá.
  - f. El contratista verificará y será responsable de todas las dimensiones y cantidades.
  - g. Todo el equipo se construirá según ANSI, NEMA y normas de P.R.E.P.A.
  - h. Todo el trabajo de construcción deberá realizarse de forma consciente y profesional de acuerdo con los planos, especificaciones y dibujos de construcción. Se seguirá la última edición del NEC, excepto donde las normas locales son más estrictas, en cuyo caso, las regulaciones locales deberán regir.

- i. El dueño deberá proveer el acceso a todas las áreas relacionadas con el proyecto. El contratista deberá presentar solicitud formal al dueño.
  - j. La ruta de los alimentadores que se presenta es preliminar. El contratista podría presentar alguna alternativa para la aprobación del dueño.
2. Servicios de mantenimiento preventivo los cuales consisten en:
- a. pruebas de transformadores de la subestación y pruebas a las conexiones a tierra de subestación. Se debe presentar los resultados y recomendaciones de:
    - i. Power factor test set,
    - ii. Insulation resistance test set,
    - iii. Turn ratio test set,
    - iv. Dielectric test set,
    - v. Acidity test kit,
    - vi. Color test kit,
    - vii. Specific gravity,
    - viii. Water Content,
    - ix. Interfacial tension,
    - x. Contact resistance.
  - b. Verificar que el torque sea el adecuado en todos los terminales, incluyendo conexiones a tierra.
  - c. Limpieza de todos los componentes:
    - i. Solo se utilizará agentes de limpieza recomendados para equipos eléctricos y compatible con la superficie a ser limpiada.
    - ii. Solo se utilizará agentes de lubricación recomendados para equipos eléctricos.
    - iii. Lubricación y pruebas mecánicas de interruptores (seccionadores y todo equipo mecánico).
    - iv. Eliminar todo polvo y humedad en los gabinetes y cuartos eléctricos.
    - v. Remover todo particulado de hierro, metal o materiales sueltos dentro de los gabinetes.
    - vi. Los componentes de aislación deben ser limpiados y secados en su totalidad.
    - vii. Asegurar que todas las aperturas de ventilación estén libres de obstáculos y limpias.
    - viii. Exterior: eliminar todo material vegetativo en el patio de la subestación.

- d. Inspección y restauración de pintura y rotulación de los gabinetes y bóveda, de ser necesario, y acorde al Código de Colores de la AEE:

i. Interruptores, Motores, Paneles y Barras

Voltaje	Fondo	Letras
120 V / 208 V / 240 V	Blanco	Negro
480 V	Negro	Blanco
2.3 kV	Azul Claro	Amarrillo
4.16 kV	Azul Oscuro	Amarrillo
8.32 kV / 7.2 kV	Violeta	Blanco
13.2 kV / 13.8 kV	Combinación Amarillo – Anaranjado	Negro
24 kV	Anaranjado	Amarrillo
38 kV	Verde	Amarrillo
115 kV	Rojo	Amarrillo
230 kV	Marrón	Amarrillo

ii. Transformadores (primer Color Indica Voltaje Más Alto)

Voltaje	Fondo	Letras
4.16 kV / 480 V	Azul Oscuro / Negro	Amarrillo
13.8 kV / 4.16 kV	Amarrillo-Anaranjado / Azul Oscuro	Negro
24 kV / 4.16 kV	Anaranjado / Azul Oscuro	Amarrillo
38 kV / 2.3 kV	Verde / Azul Claro	Amarrillo
38 kV / 4.16 kV	Verde / Azul Oscuro	Amarrillo
38 kV / 8.32 kV – 7.2 kV	Verde / Violeta	Blanco
38 kV / 13.2 kV – 13.8 kV	Verde / Amarrillo-Anaranjado	Negro

**Trabajos adicionales:**

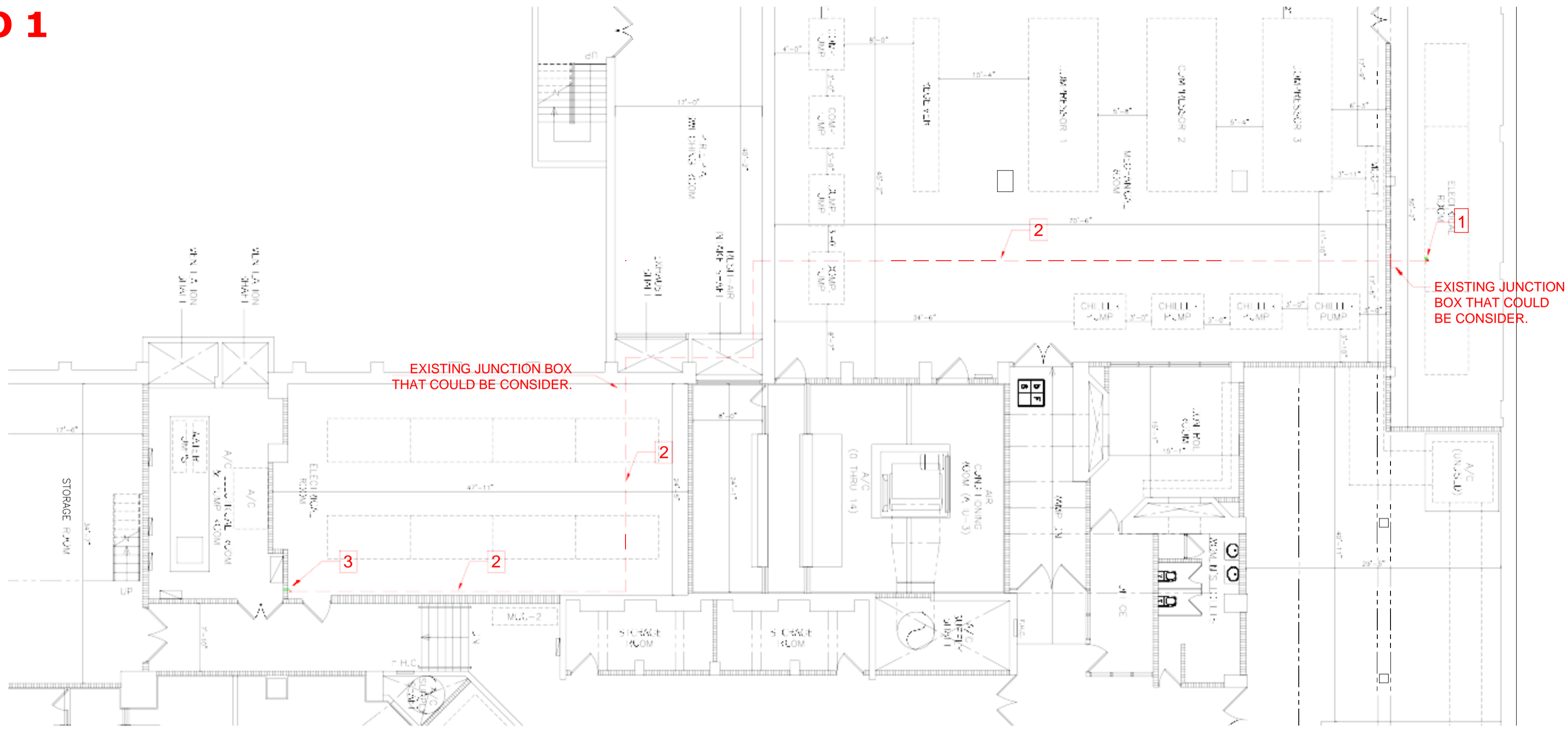
1. Refiérase al informe “Thermographic Inspection Report”, Anejo 2. Los trabajos requeridos en otras subestaciones que presenta el informe serán atendidos en otro proyecto. Proveer mayor atención a los hallazgos y recomendaciones importantes en la Subestación #2:
  - a. Lado primario Subestación #2, página 17 – limpieza, ajuste y verificación de conexión.

**Notas importantes:**

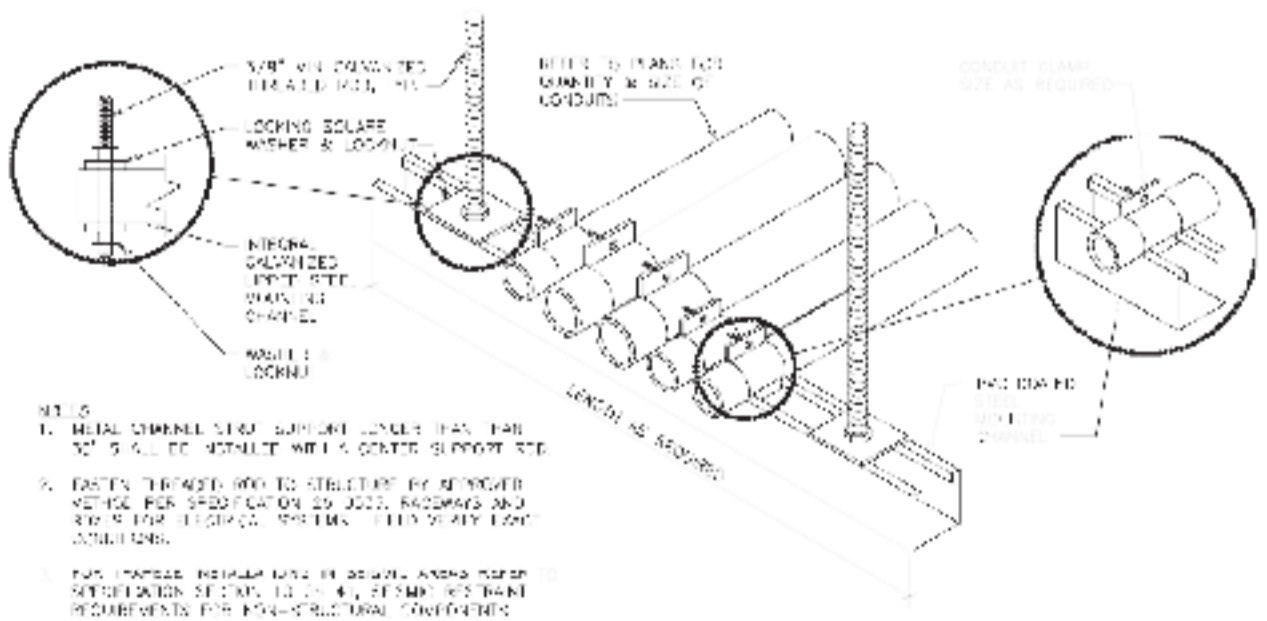
- Se debe considerar costos y trámites de vía libre para desconexión y reconexión de la energía.
- Las áreas de las instalaciones que no se estén impactando por los trabajos se mantendrán energizadas con los generadores de emergencia existente, y en coordinación con el dueño, mientras se realizan los trabajos programados y acordados en cada momento.

# ANEJO 1

## ELECTRICAL ROOMS - WORLD PLAZA BUILDING 268 AV. LUIS MUÑOZ RIVERA, SAN JUAN SAN JUAN, PUERTO RICO.



**PRELIMINARY ATS FEEDER ROUTE**  
SCALE: N.T.S.



- NOTES:
1. METAL CHANNEL SERV. SUPPORTS SHALL BE 1/2" DIA. 3" LONG, TO BE INSTALLED WITH A CENTER SUPPORT STEP.
  2. TRAPEZES SHALL BE TO BE INSTALLED BY MANUFACTURER'S RECOMMENDATION FOR SUPPORTATION OF 25 JOINTS, RACKS AND 800 LB. LOADS. REFER TO THE MANUFACTURER'S LITERATURE FOR MORE DETAILS.
  3. FOR TRAPEZE INSTALLATION IN CONDUIT, REFER TO THE MANUFACTURER'S RECOMMENDATION FOR SUPPORTATION OF 25 JOINTS, RACKS AND 800 LB. LOADS. REFER TO THE MANUFACTURER'S LITERATURE FOR MORE DETAILS.

**CONDUIT TRAPEZE MOUNTING DETAIL**

NOTES: ALL WORK SHALL BE IN ACCORDANCE WITH THE ELECTRICAL CODES AND ALL APPLICABLE REGULATIONS AND STANDARDS.

### LEGEND:

1. EXISTING 800AMP/3P BREAKER TO BE REPLACED BY NEW 1,000 AMP/3P BREAKER. THE NEW BREAKER WILL BE SUPPLIED BY THE OWNER. THE EXISTING BREAKER IS IDENTIFIED AS "TRANSFER SWITCH (ATS) PLANTA CATERPILLAR BPPR".
2. NEW ATS FEEDER CONSISTING OF THREE (3) SETS EACH OF 4-500 KCMIL(THHN) AND 1#2 AWG (GND)-THHN IN A 4" EMT CONDUIT. THE NEW FEEDER WILL BE SUPPLIED BY OWNER. THE CONTRACTOR SHALL SUPPLY THE CONDUIT AND OTHER ELEMENTS. REFER TO CONDUIT TRAPEZE MOUNTING DETAIL FOR SUPPORT DETAILS.
3. EXISTING ATS 480V, 1,000 AMP, 3PH, TO BE REMAIN.

### SPECIAL NOTES:

1. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND QUANTITIES.
2. ALL EQUIPMENT SHALL BE CONSTRUCTED ACCORDING TO ANSI, NEMA, AND P.R.E.P.A. STANDARDS.
3. ALL CONSTRUCTION WORK SHALL BE DONE IN A THOROUGH AND WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, AND CONSTRUCTION DRAWINGS. THE LATEST EDITION OF THE NEC SHALL BE FOLLOWED EXCEPT WHERE LOCALS ARE MORE STRINGENT, IN WHICH CASE, LOCAL REGULATIONS SHALL GOVERN.
4. THE OWNER SHALL PROVIDE ACCESS TO ALL AREAS RELATED WITH THE PROJECT. THE CONTRACTOR SHALL PRESENT A FORMAL REQUEST TO THE OWNER.
5. THE ROUTE PRESENTED IS A PRELIMINARY ONE. THE CONTRACTOR COULD PRESENT ANY ALTERNATIVE FOR OWNER APPROVAL.

DRAFTING DESIGN  
 PRELIMINARY ATS FEEDER ROUTE  
 Digitally signed by Jose A Garcia Perez  
 Date: 2023.03.24 09:56:20 -0400  
 STAMP: JAG  
 Project: WPL-23-01  
 DRAWING BY: JOSE A. GARCIA  
 Revised by: JOSE A. GARCIA  
 1 of 1  
 E-1



**THERMOGRAPHIC INSPECTION REPORT**



**ADMINISTRACION DE TRIBUNALES**

**SAN JUAN, P.R.**

**JANUARY 2023**

**JOSE AGARCIA**

STORM ELECTRICAL TESTING & MAINTENANCE SERVICES LLC

787-404-4323

stormelectricalpr@gmail.com



Date: January 22, 2023

Customer: Jose A Garcia

Test Location: Administracion de Tribunales

Address: San Juan, P.R.

**WORK DESCRIPTION**

The work was realized using the Standard for Maintenance Testing Specifications for Electrical Power Equipment and Systems (NETAMTS 2019). Infrared electrical inspections find hotspots caused by defects in connections and components. Infrared thermography is used to find areas of excess heat (caused by increased resistance) so that problems can be corrected before a component fails, causing damage to the component, creating safety hazards and productivity loss.

**EQUIPMENT INSPECTED**

- All Electrical Equipment Administracion de tribunales.

**TEST SET**

- Infrared Camera Model Flir T530.

**RESULTS**

**TABLE 100.18**  
**Thermographic Survey**  
**Suggested Action Based on Temperature Rise**  
**NETAMTS 2019**

Temperature Difference (ΔT) Based Upon Comparison Between Component Under Similar Loading	Temperature Difference (ΔT) Based Upon Comparison Between Component and Ambient Air Temperatures	Recommended Action
1°C - 3°C	1°C - 10°C	Possible deficiency; warrants investigation
4°C - 15°C	11°C - 20°C	Indicates probable deficiency; repair as time permits
-----	21°C - 40°C	Monitor until corrective measures can be accomplished
> 15°C	> 40°C	Major discrepancy; repair immediately

Notes: Temperature specifications vary depending on the exact type of equipment. Even in the same class of equipment (i.e., cables) there are various temperature ratings. Heating is generally related to the square of the current; therefore, the load current will have a major impact on ΔT. In the absence of consensus standards for ΔT, the values in this table will provide reasonable guidelines.



**RECOMMENDATIONS**

Verify and correct all Hot Spots found during this study to prevent future electrical failure. ( Hot Spots are often corrected by cleaning and adjusting the connections.)

Perform electrical maintenance to all equipment once a year.

**SUBMITTED BY:**

A handwritten signature in blue ink, appearing to read "Osvaldo Cruz", written over a white background.

**OSVALDO CRUZ, PE**



Fecha de Expiración: 2024-12-06





**SUMMARY:**

EQUIPMENT	CONDITION	PAGE#
POLELIGHTNINGARRESTERS	NORMAL	1
STRUCTURE LIGHTNINGARRESTERS	NORMAL	2
AIRCIRCUITBREAKER	NORMAL	3
38KVFUSES	NORMAL	4
METERINGEQUIPMENT	NORMAL	5
38KVBUSHING	NORMAL	6
CUBICULE53 -G3	NORMAL	7
CUBICULE52 -G1	NORMAL	8
CUBICULE52 -GM	NORMAL	9
CUBICULE52 -UM	NORMAL	10
CUBICULE52 -F2	NORMAL	11
PRIMARYSIDESUBSTATION#1	<b>MEDIUM</b>	12
LIGHTNINGARRESTERSSUBSTATION#1	NORMAL	13
SECONDARYSIDESUBSTATION#1	NORMAL	14
MAIN BREKAERSUBSTATION#1	NORMAL	15
AUTOTRANSFER52 -1	<b>MINOR</b>	16
PRIMARYSIDESUBSTATION#2	<b>MEDIUM</b>	17
SECONDARYSIDESUBSTATION#2	NORMAL	18
LIGHTNINGARRESTERSSUBSTATION#2	NORMAL	19
MAINBREAKER SUBSTATION#2	NORMAL	20
PRIMARYSIDE SUBSTATION# 3	<b>MEDIUM</b>	21
LIGHTNINGARRESTERSSUBSTATION# 3	NORMAL	22
SECONDARYSIDESUBSTATION#3	NORMAL	23
MAINBREAKER SUBSTATION# 3	NORMAL	24
SECONDARYSIDESUBSTAT ION#4	NORMAL	25
MAINBREAKERSUBSTATIO N#4	NORMAL	26
LIGHTNINGARRESTERSSUBSTATION#4	NORMAL	27
PRIMARYSIDESUBSTATION#4	NORMAL	28
BUSDUCTFLOOR4	NORMAL	29
BUSDUCTFLOOR5	NORMAL	30
BUSDUCTFLOOR6	NORMAL	31
BUSDUCTFLOOR7	NORMAL	32
BUSDUCTFLOOR8	NORMAL	33
BUSDUCTFLOOR9	NORMAL	34
BUSDUCTFLOOR10	NORMAL	35
BUSDUCTFLOOR12	NORMAL	36
BUSDUCTFLOOR14	NORMAL	37
BUSDUCTFLOOR15	NORMAL	38
BUSDUCTFLOOR16	NORMAL	39



BUS DUCTFLOOR17	NORMAL	40
BUSDUCTFLOOR18	NORMAL	41
BUSDUCTFLOOR19	NORMAL	42
BUSDUCTFLOOR20	NORMAL	43
BUSDUCTFLOOR21	NORMAL	44
BUSDUCTFLOOR22	NORMAL	45
BUSDUCTFLOOR23	NORMAL	46

Measurements

Sp1	23.4°C
Sp2	23.7°C
Dt1	Sp1 - Sp2 -0.3°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

Location	N18°25'27.73",W66°3'33.31"
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**DESCRIPTION:POLELIGHTNINGARRESTERS**

**LOCATION:ADMISTRACIONDETRIBUNALES38KVMINSUBSTATION**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	23.0°C
Sp2	23.0°C
Dt1	Sp1 - Sp2 0.0°C

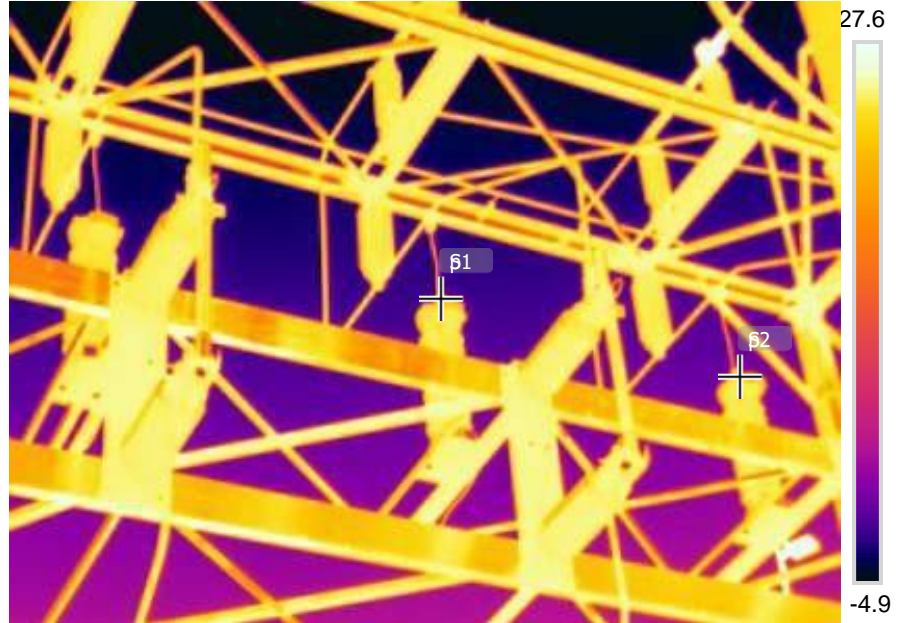
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Emissivity	0.95
Refl.temp.	30 °C

Geolocation

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**DESCRIPTION:STRUCTURELIGHTNINGARRESTERS**

**LOCATION:ADMISTRACIONDETRIBUNALES38KVMINSUBSTATION**

**CONDITION:NORML**

**RECOMENDACIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	24.4°C
Sp2	24.5°C
Dt1	Sp1 - Sp2 -0.1°C

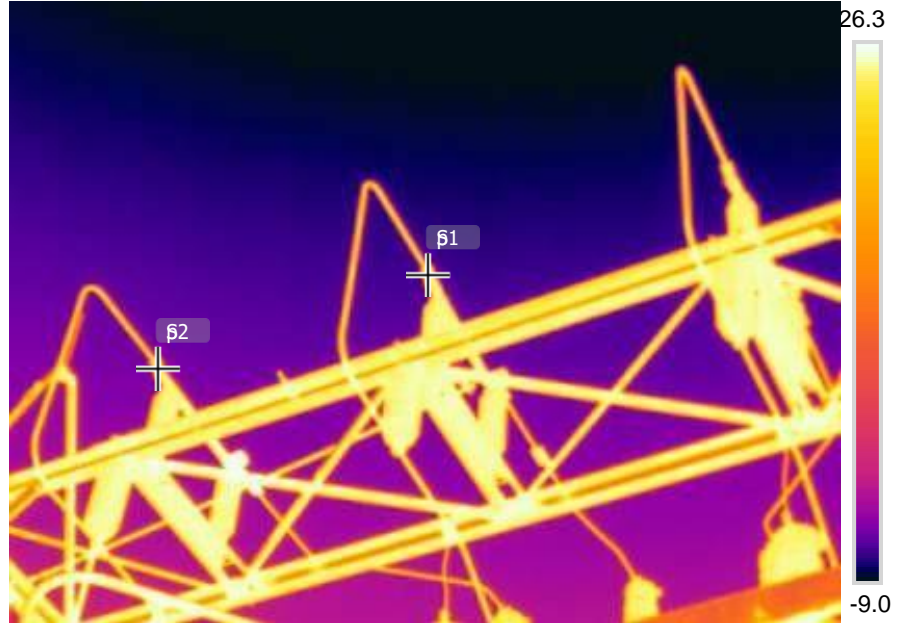
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Emissivity	0.95
Refl.temp.	30 °C

Geolocation

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**DESCRIPTION:AIRCIRCUITBREAKER**

**LOCATION:ADMISTRACIONDETRIBUNALES38KV/MNSUBSTATION**

**CONDITION:NORMAL**

**RECOMENDACIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	25.3°C
Sp2	25.0°C
Dt1	Sp1 - Sp2 0.3°C

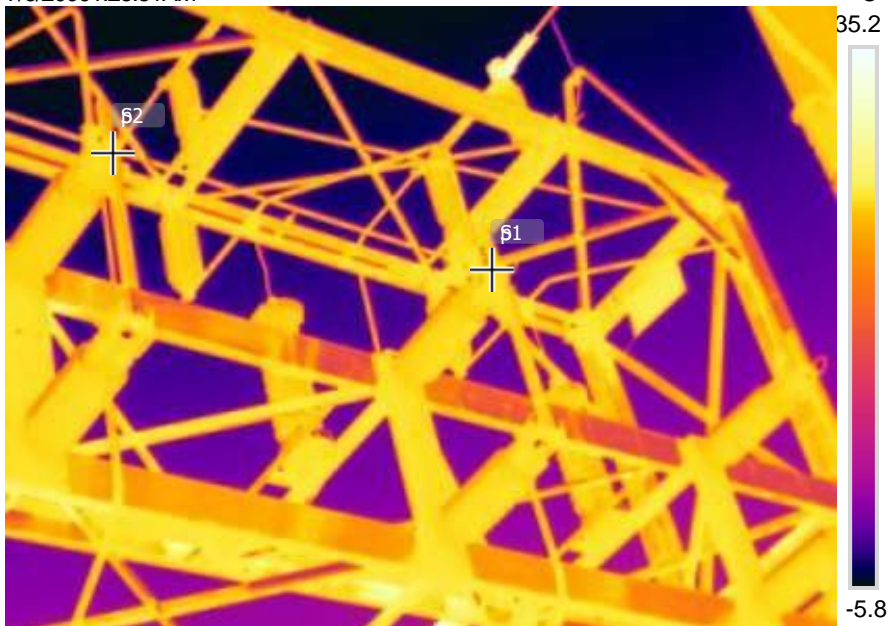
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Refl.temp.	30 °C

Geolocation

Location	N18°25'27.81",W66°3'33.52"
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**DESCRIPTION:38KVFUSES**

**LOCATION:ADMINISTRACIONDETRIBUNALES38KVMINSUBSTATION**

**CONDITION:NORMAL**

**RECOMENDACIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	25.8°C
Sp2	25.6°C
Dt1	Sp1 - Sp2 0.2°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

Location	N18°25'27.81",W66°3'33.44"
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**DESCRIPTION:ENTERINGEQUIPENT**

**LOCATION:ADMISTRACIONDETRIBUNALES38KVMINSUBSTATION**

**CONDITION:NORMAL**

**RECOMENDACIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	27.7°C
Sp2	28.0°C
Dt1	Sp1 - Sp2 -0.3°C

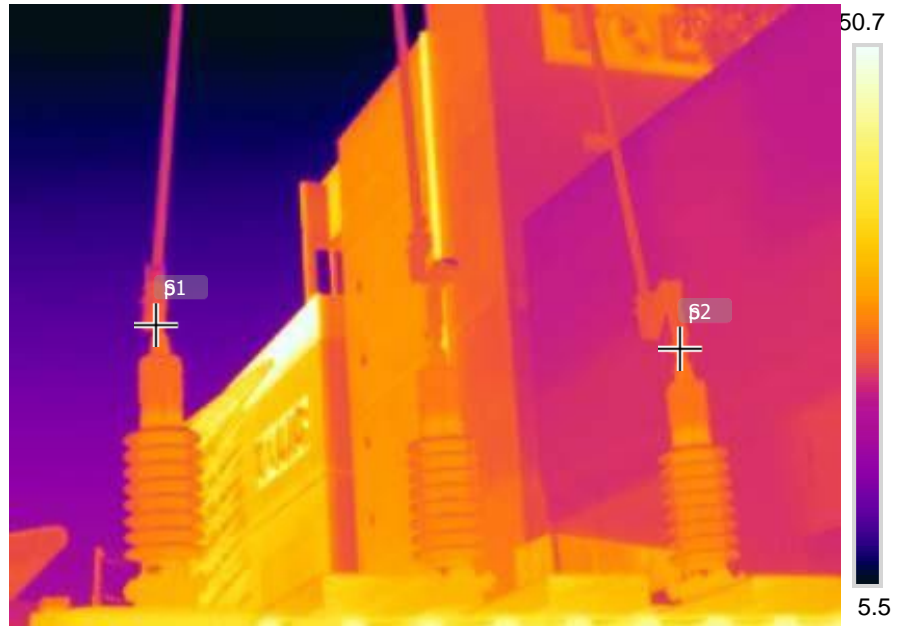
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

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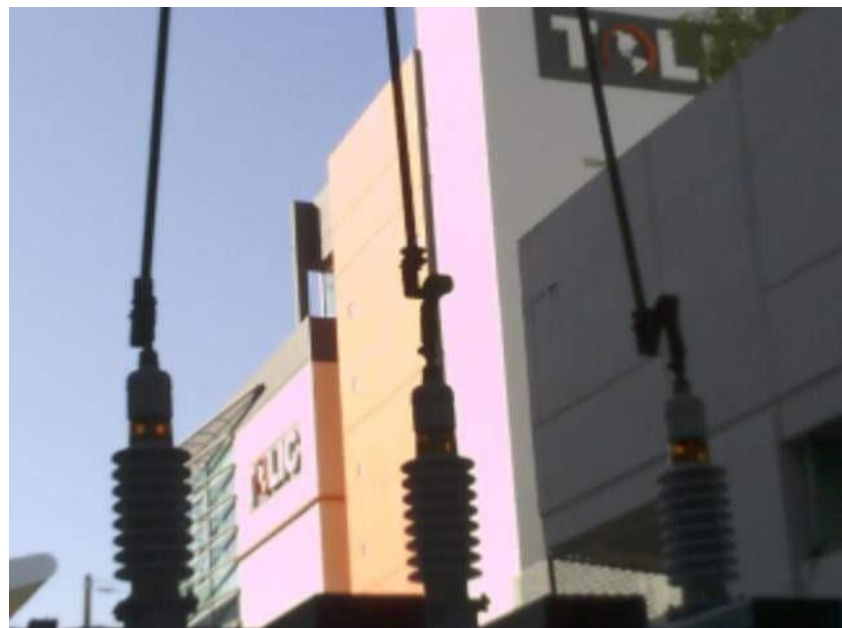


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**DESCRIPTION:38KVTRANSFORMERBUSHING**

**LOCATION:ADMINISTRACIONDETRIBUNALES38KVINSUBSTATION**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**



Measurements

Sp1		20.3°C
Sp2		20.9°C
Dt1	Sp1 - Sp2	-0.5°C

Parameters

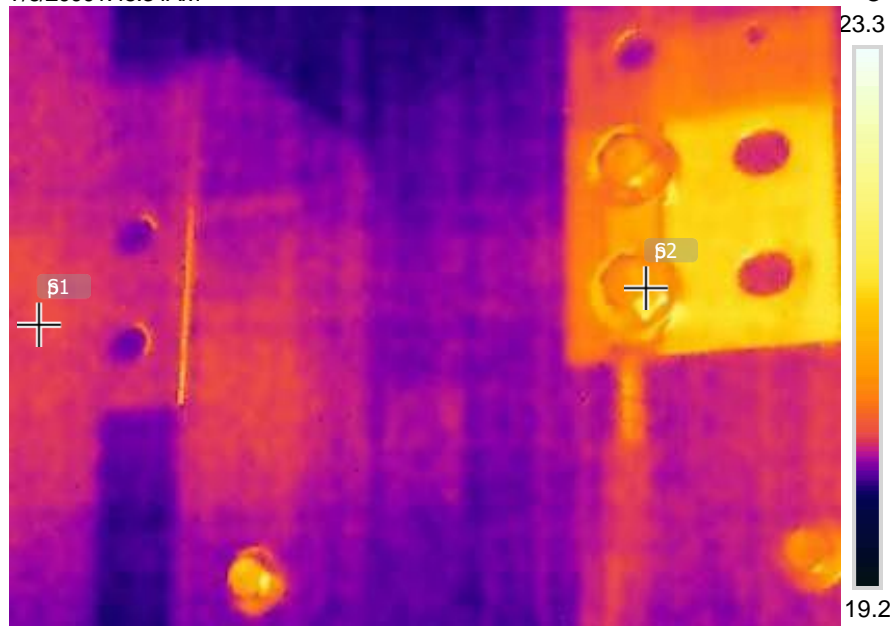
Emissivity	0.95
Refl.temp.	30 °C

Geolocation

Location	N18°25'27.40",W66°3'33.92"
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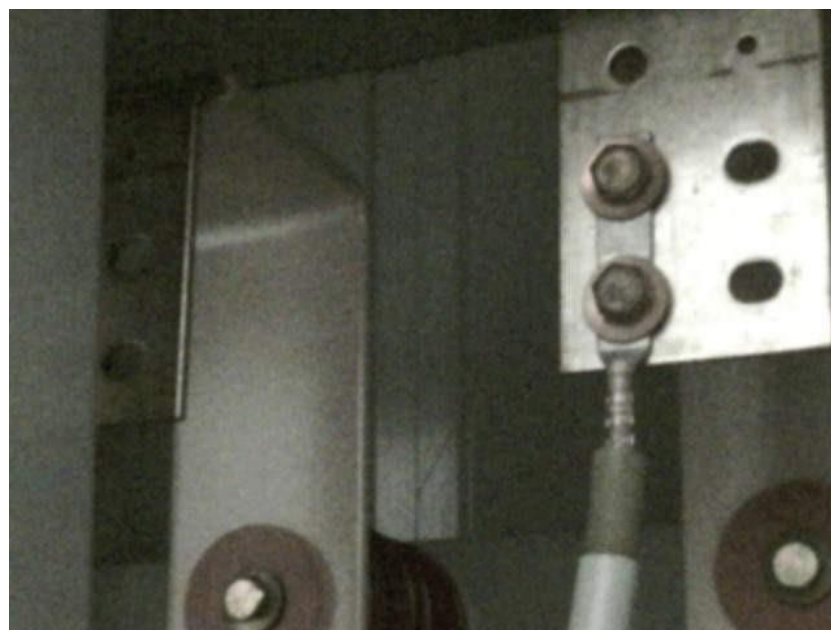


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**DESCRIPTION:CUBICULE53 -G3**

**LOCATION:PARALELLINGROOM**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	19.9°C
Sp2	20.2°C
Dt1	Sp1 - Sp2 -0.2°C

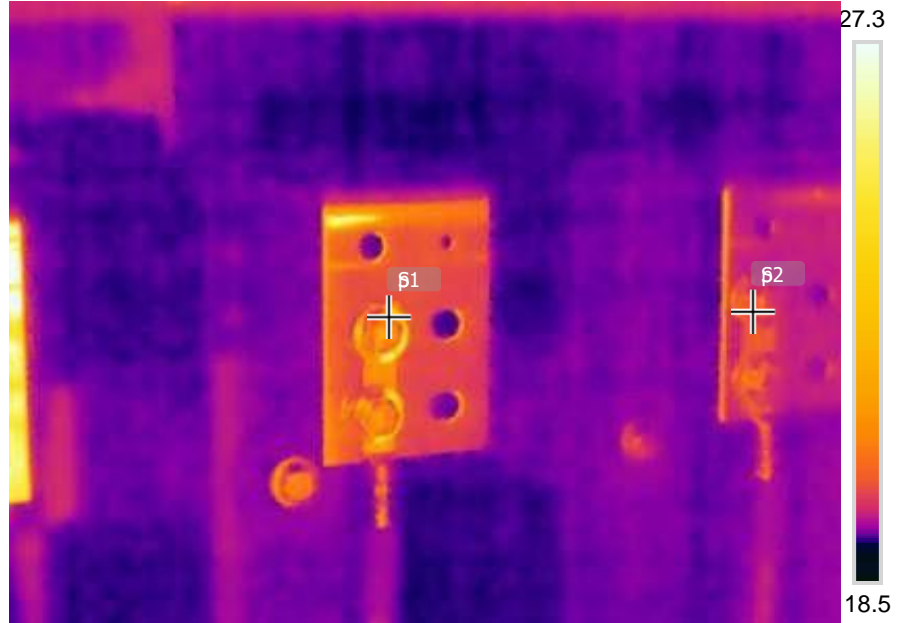
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

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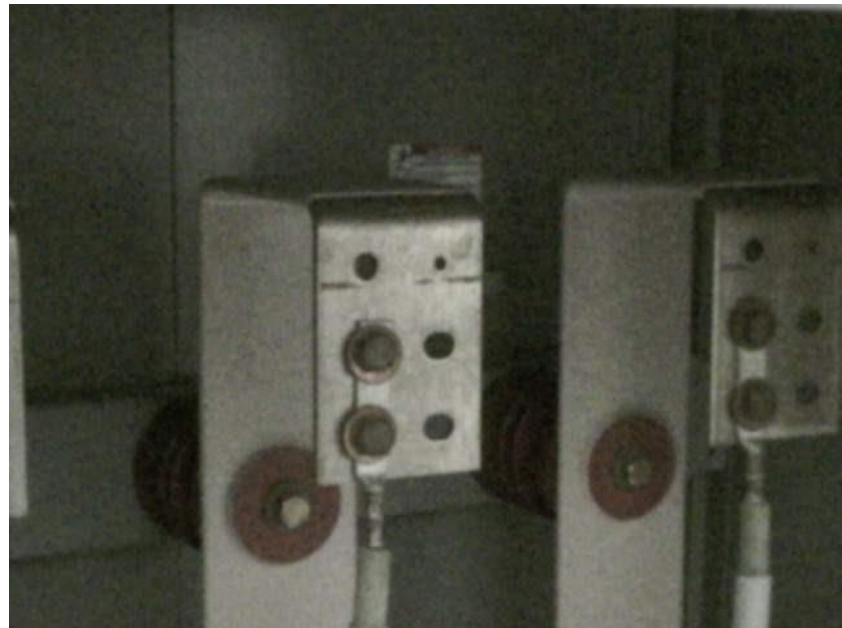


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**DESCRIPTION:CUBICULE52 -G1**

**LOCATION:PARALELLINGROOM**

**CONDITION:NORMAL**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1		19.8°C
Sp2		19.9°C
Dt1	Sp1 - Sp2	-0.1°C

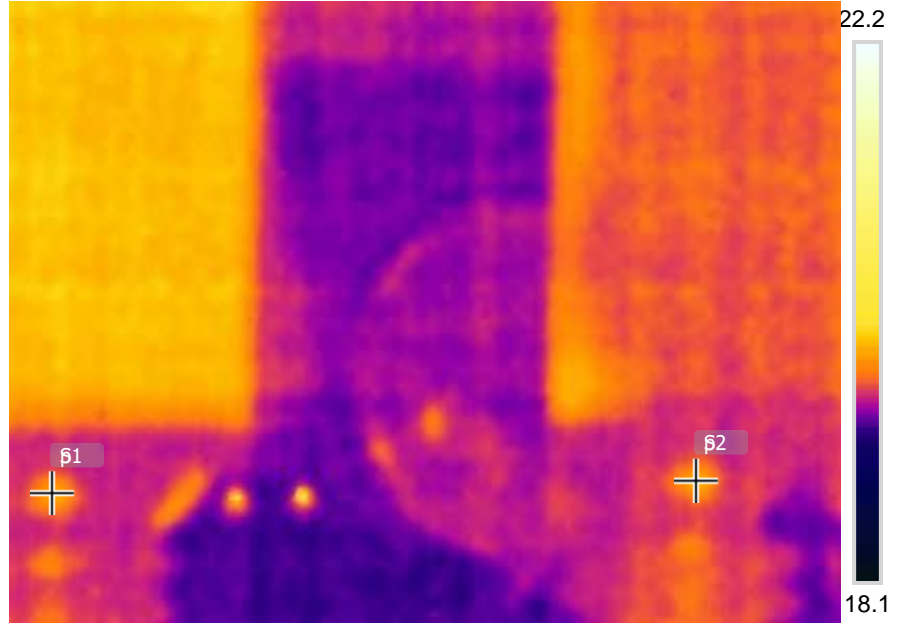
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

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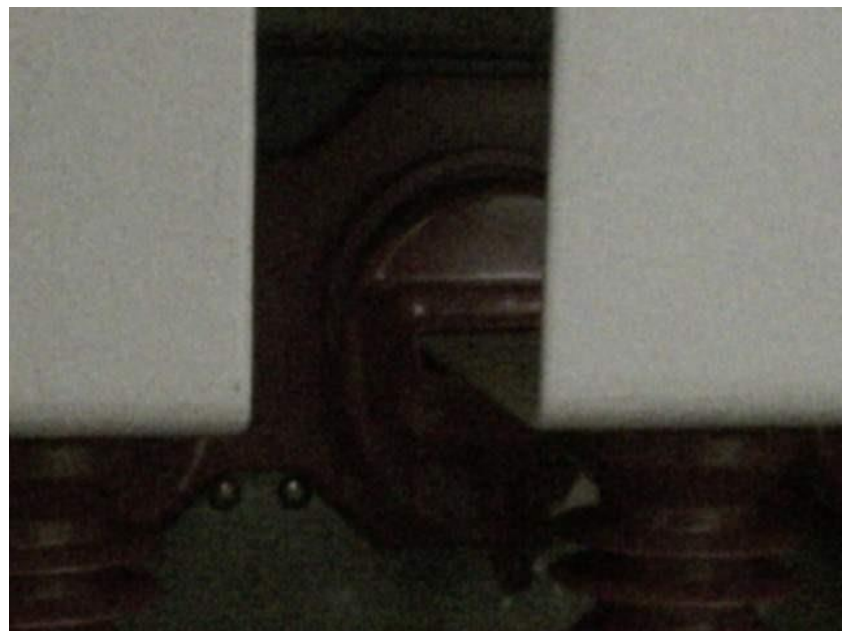


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**DESCRIPTION:CUBICULE52 -GM**

**LOCATION:PARALELLINGROOM**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	21.1°C
Sp2	20.6°C
Dt1	Sp1 - Sp2 0.4°C

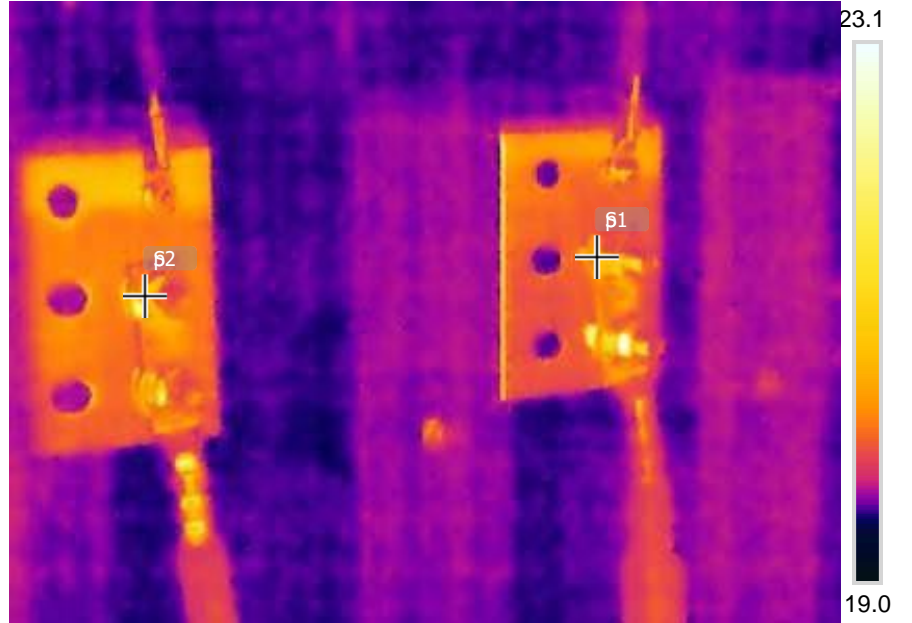
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

Location	N18°25'27.71",W66°3'32.50"
	<a href="http://maps.google.com?z=17&amp;t=k&amp;q=18.4244,-66.0590">http://maps.google.com?z=17&amp;t=k&amp;q=18.4244,-66.0590</a>

7/6/20001:47:16AM

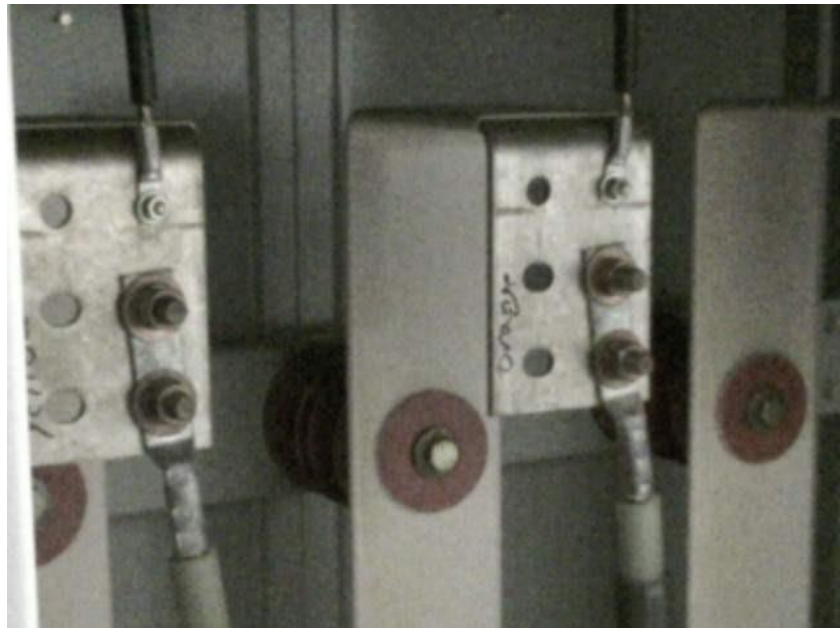


IR\_47701.jpg

FLIRT530

79314659

7/6/20001:47:16AM



IR\_47701.jpg

FLIRT530

79314659

**DESCRIPTION:CUBICULE52 -UM**

**LOCATION:PARALELLINGROOM**

**CONDITION:NORMAL**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	20.5°C
Sp2	20.2°C
Dt1	Sp1 - Sp2 0.3°C

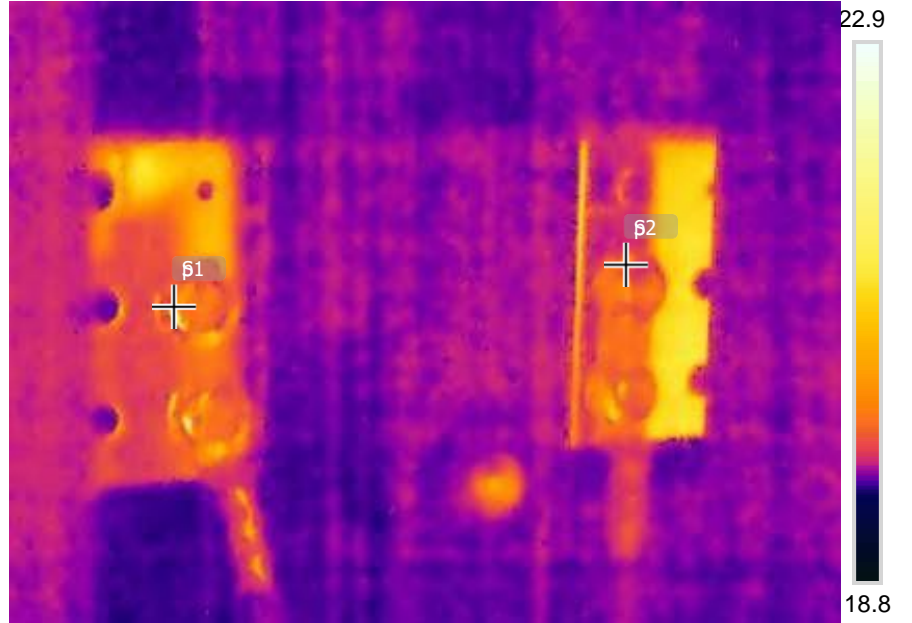
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

Location	N18°25'27.07",W66°3'32.80"
	<a href="http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591">http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591</a>

7/6/20001:47:39AM

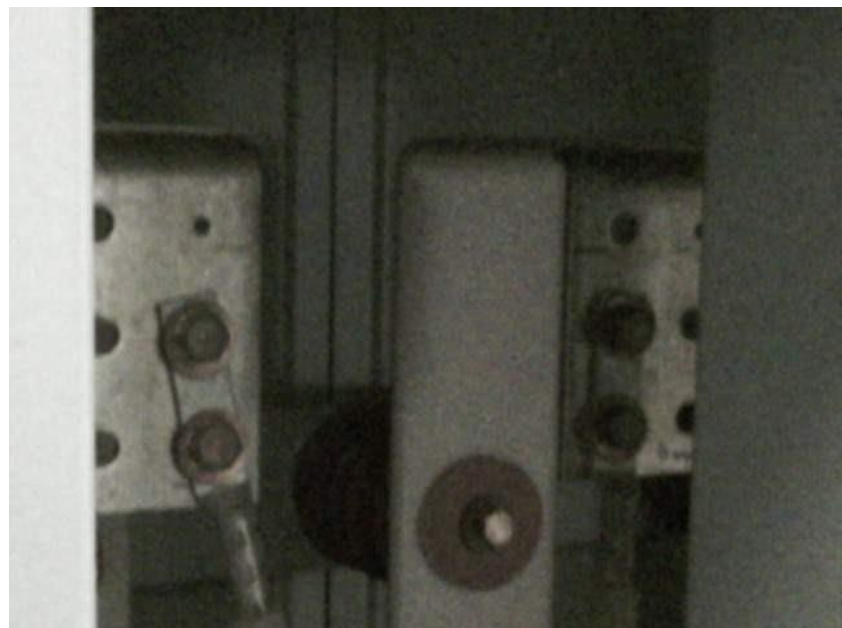


IR\_47702.jpg

FLIRT530

79314659

7/6/20001:47:39AM



IR\_47702.jpg

FLIRT530

79314659

**DESCRIPTION:CUBICULE52 -F2**

**LOCATION:PARALELLINGROOM**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	64.7°C
Sp2	57.7°C
Dt1	Sp1 - Sp2 7.0°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

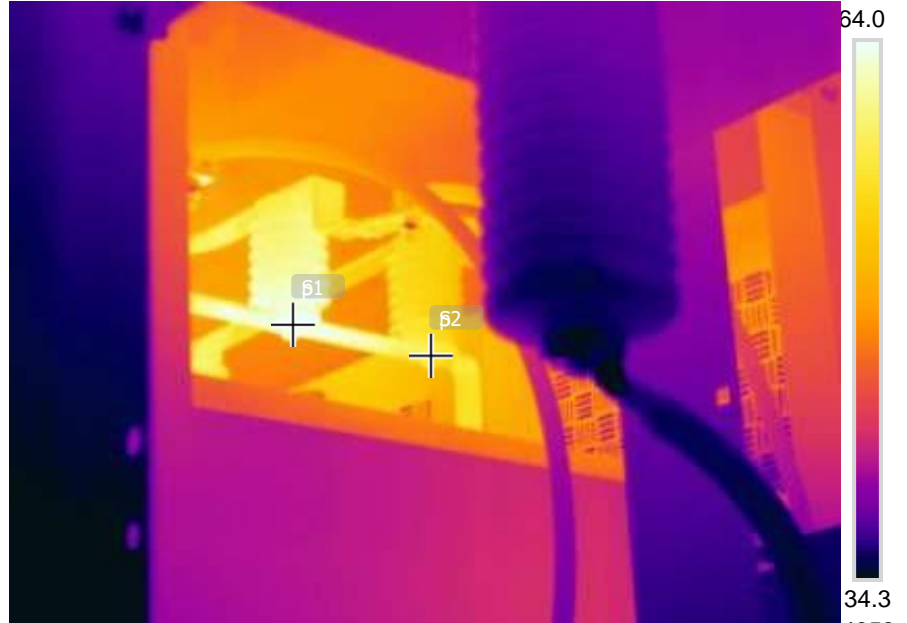
Location	N18°25'27.04",W66°3'32.84"
----------	----------------------------

<http://maps.google.com?z=17&t=k&q=18.4242,-66.0591>

Note

MEDIUMHOTSPOT

7/6/20002:05:31AM



IR\_47703.jpg

FLIRT530

79314659

7/6/20002:05:31AM



IR\_47703.jpg

FLIRT530

79314659

**DESCRIPTION:PRIMARYSIDE**

**LOCATION:SUBSTATION1( 2000KVA)**

**CONDITION:MEDIUM**

**RECOMMENDATIONACTION:CLEANING,ADJUSTANDVERIFYCONNECTION  
( IFISNECESSARYREPLACEINSULATOR)**

Measurements

Sp1		32.6°C
Sp2		32.6°C
Dt1	Sp1 - Sp2	-0.1°C

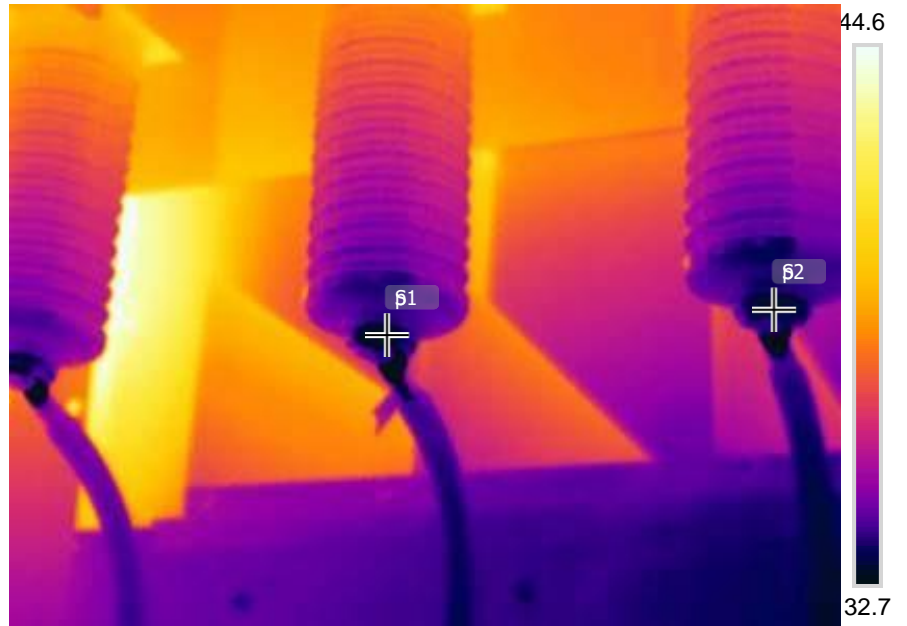
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

Location	N18°25'27.04",W66°3'32.84"
	<a href="http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591">http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591</a>

7/6/20002:06:07AM



IR\_47704.jpg

FLIRT530

79314659

7/6/20002:06:07AM



IR\_47704.jpg

FLIRT530

79314659

**DESCRIPTION:LIGHTNINGARRESTERS**

**LOCATION:SUBSTATION1( 2000KVA)**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	38.4°C
Sp2	38.4°C
Dt1	Sp1 - Sp2 0.0°C

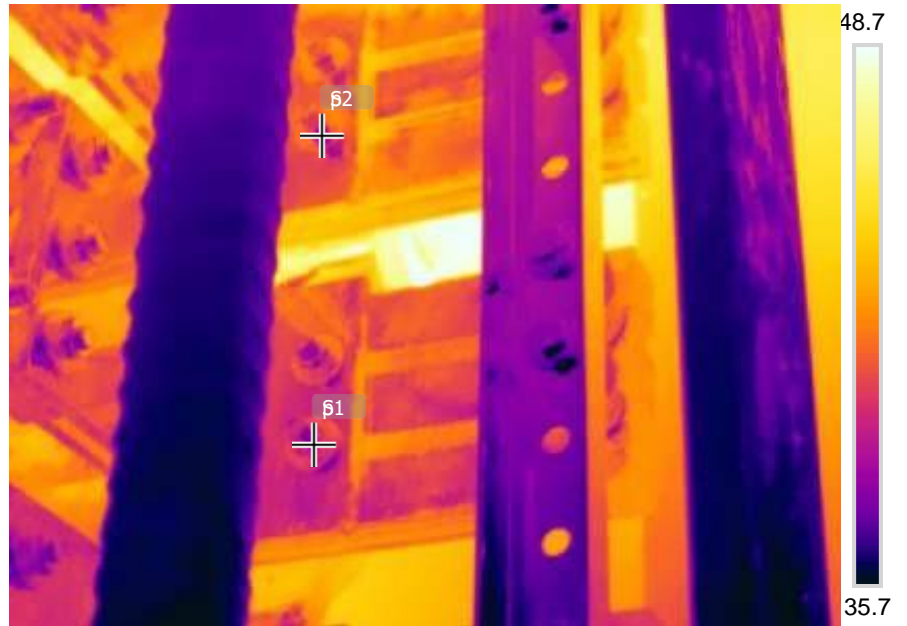
Parameters

Emissivity	0.95
Refl.temp.	20 °C

Geolocation

Location	N18°25'27.04",W66°3'32.84"
<a href="http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591">http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591</a>	

7/6/20002:11:39AM



IR\_47705.jpg

FLIRT530

79314659

7/6/20002:11:39AM



IR\_47705.jpg

FLIRT530

79314659

**DESCRIPTION:SECONDARYSIDE**

**LOCATION:SUBSTATION1( 2000KVA)**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**



Measurements

Sp1	36.6°C
Sp2	36.1°C
Dt1	Sp1 - Sp2 0.5°C

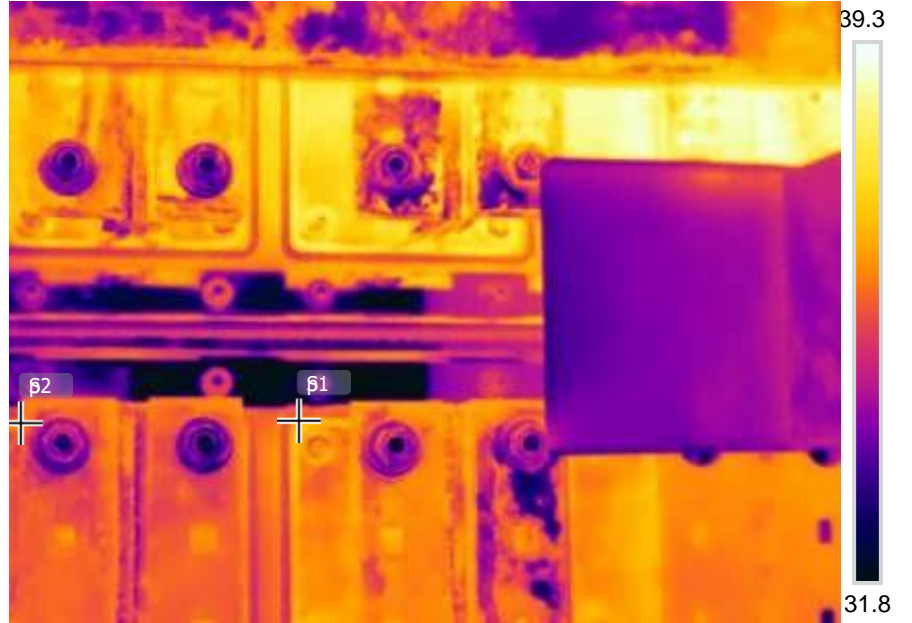
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Geolocation

Location	N18°25'27.04",W66°3'32.84"
<a href="http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591">http://maps.google.com?z=17&amp;t=k&amp;q=18.4242,-66.0591</a>	

7/6/20002:12:18AM



IR\_47706.jpg

FLIRT530

79314659

7/6/20002:12:18AM



IR\_47706.jpg

FLIRT530

79314659

**DESCRIPTION:MINBREAKER**

**LOCATION:SUBSTATION1( 2000KVA)**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	34.1°C
Sp2	32.9°C
Dt1	Sp1 - Sp2 1.2°C

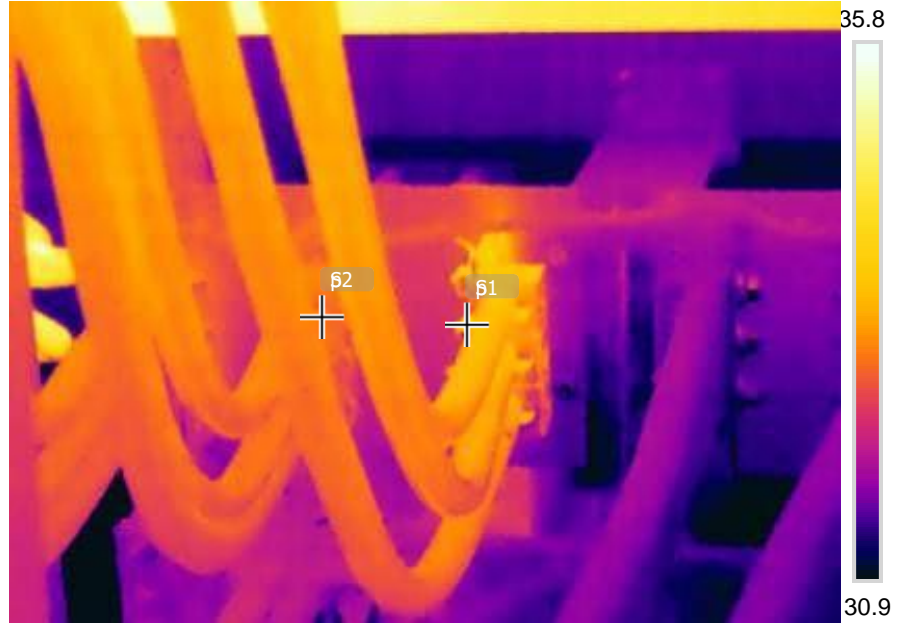
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Note

MINORHOTSPOT

7/6/20002:14:27AM



IR\_47707.jpg

FLIRT530

79314659

7/6/20002:14:27AM



IR\_47707.jpg

FLIRT530

79314659

**DESCRIPTION:AUTOTRANSFER52 -1**

**LOCATION:SUBSTATION1( 2000KVA)**

**CONDITION:WOR**

**RECOMENDATIONACTION:CLEANING,ADJUSTANDVERIFYCONNECTION**

Measurements

Sp1		65.2°C
Sp2		59.3°C
Dt1	Sp1 - Sp2	5.9°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

Note

MEDIUMHOTSPOT

7/6/20002:18:38AM



IR\_47708.jpg

FLIRT530

79314659

7/6/20002:18:38AM



IR\_47708.jpg

FLIRT530

79314659

**DESCRIPTION:PRIMARYSIDE**

**LOCATION:SUBSTATION2( 2000KVA)**

**CONDITION:MEDIUM**

**RECOMMENDATIONACTION:CLEANING,ADJUSTANDVERIFYCONNECTION**

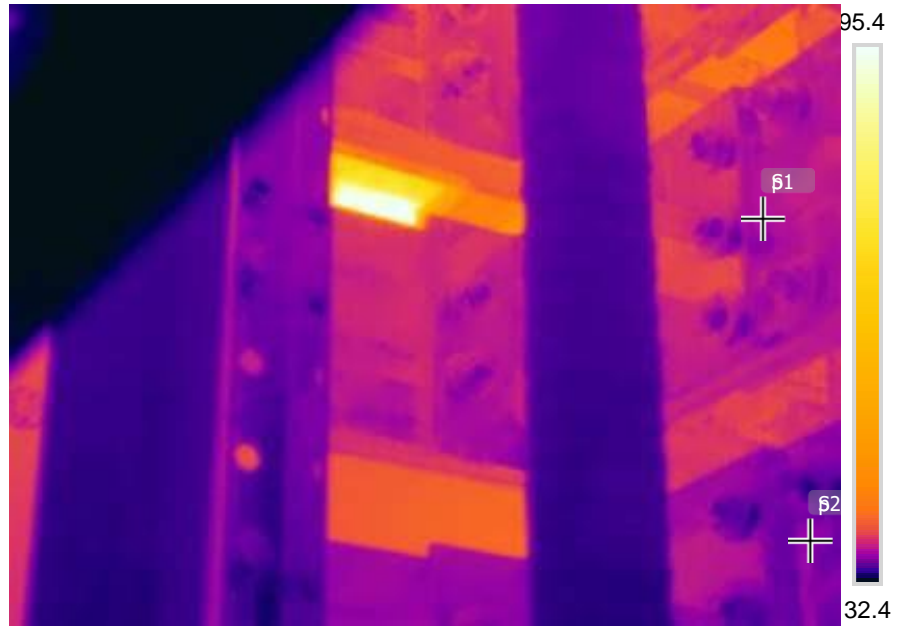
Measurements

Sp1		36.5°C
Sp2		36.0°C
Dt1	Sp1 - Sp2	0.5°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20002:20:59AM



IR\_47710.jpg

FLIRT530

79314659

7/6/20002:20:59AM



IR\_47710.jpg

FLIRT530

79314659

**DESCRIPTION:SECONDARYSIDE**

**LOCATION:SUBSTATION2( 2000KVA)**

**CONDITION:NORAL**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1		34.3°C
Sp2		34.8°C
Dt1	Sp1 - Sp2	-0.5°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20002:18:52AM



IR\_47709.jpg

FLIRT530

79314659

7/6/20002:18:52AM



IR\_47709.jpg

FLIRT530

79314659

**DESCRIPTION:LIGHTNINGARRESTERS**

**LOCATION:SUBSTATION2( 2000KVA)**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

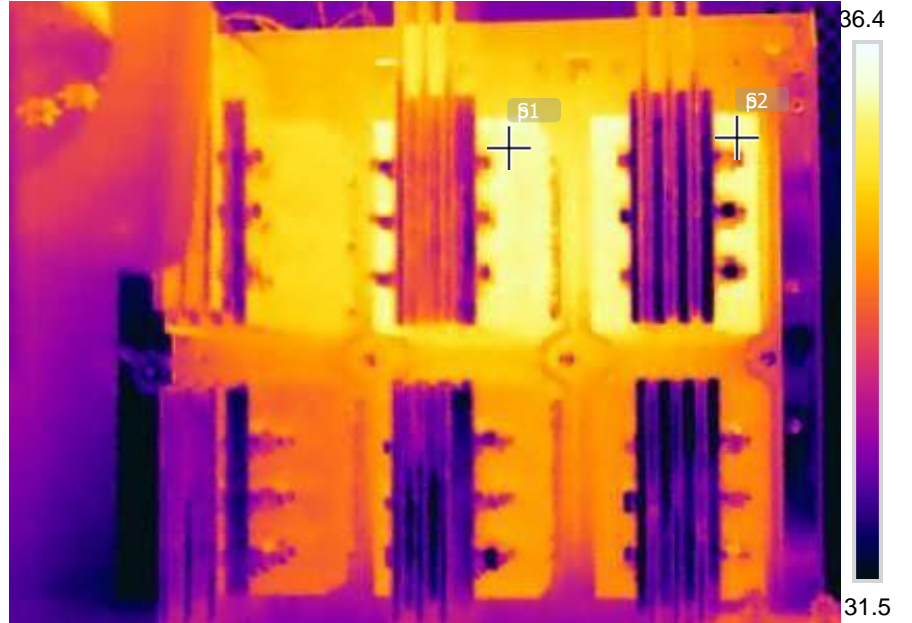
Measurements

Sp1		35.9°C
Sp2		35.8°C
Dt1	Sp1 - Sp2	0.1°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20002:21:10AM

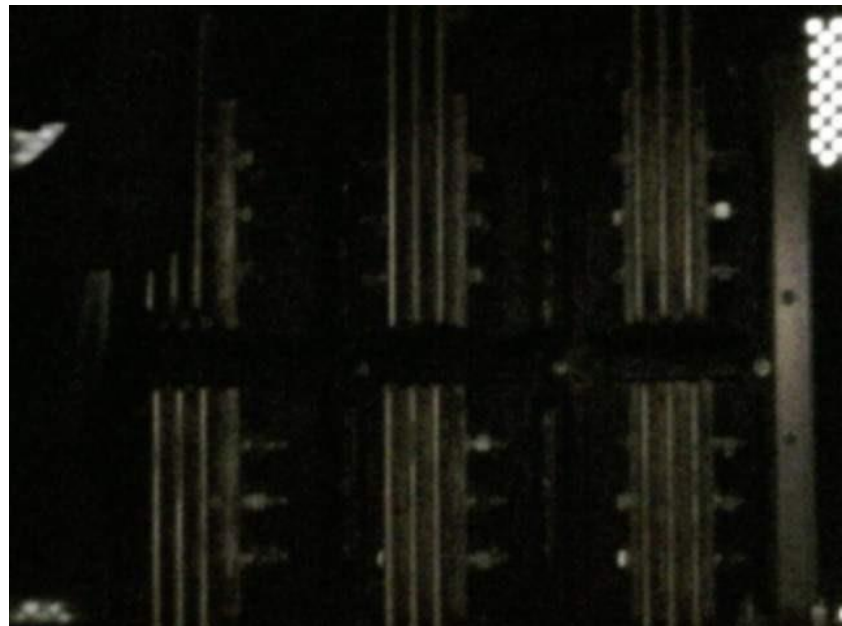


IR\_47711.jpg

FLIRT530

79314659

7/6/20002:21:10AM



IR\_47711.jpg

FLIRT530

79314659

**DESCRIPTION:MNBREAKER**

**LOCATION:SUBSTATION2( 2000KVA)**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1		45.9°C
Sp2		52.0°C
Dt1	Sp1 - Sp2	-6.1°C

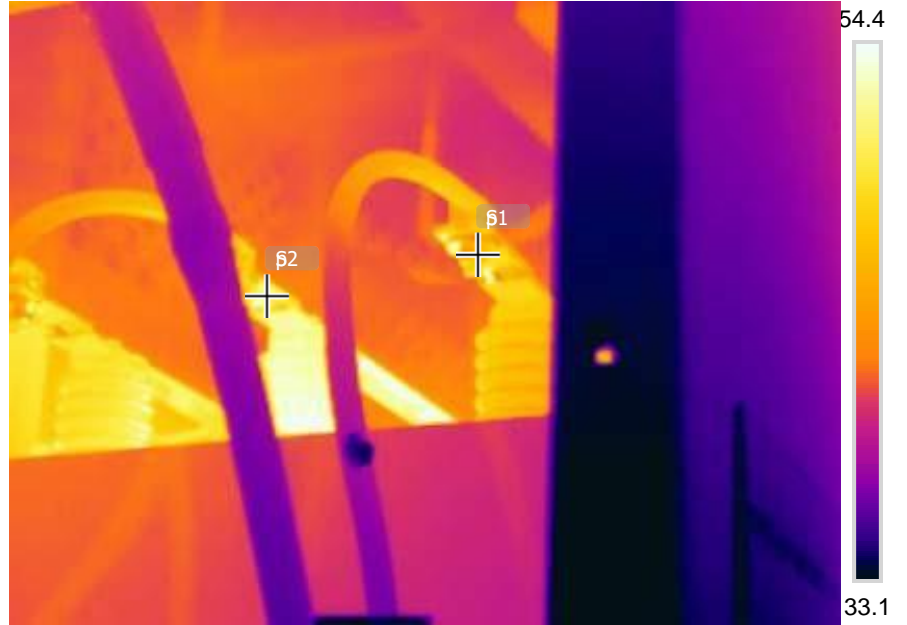
Parameters

Emissivity	0.95
Refl.temp.	30 °C

Note

MEDIUMHOTSPOT

7/6/20002:31:50AM



IR\_47712.jpg

FLIRT530

79314659

7/6/20002:31:50AM



IR\_47712.jpg

FLIRT530

79314659

**DESCRIPTION:PRIMARYSIDE**

**LOCATION:SUBSTATION3( 1500KVA)**

**CONDITION:MEDIUM**

**RECOMMENDATIONACTION:CLEANING,ADJUSTANDVERIFYCONNECTION**

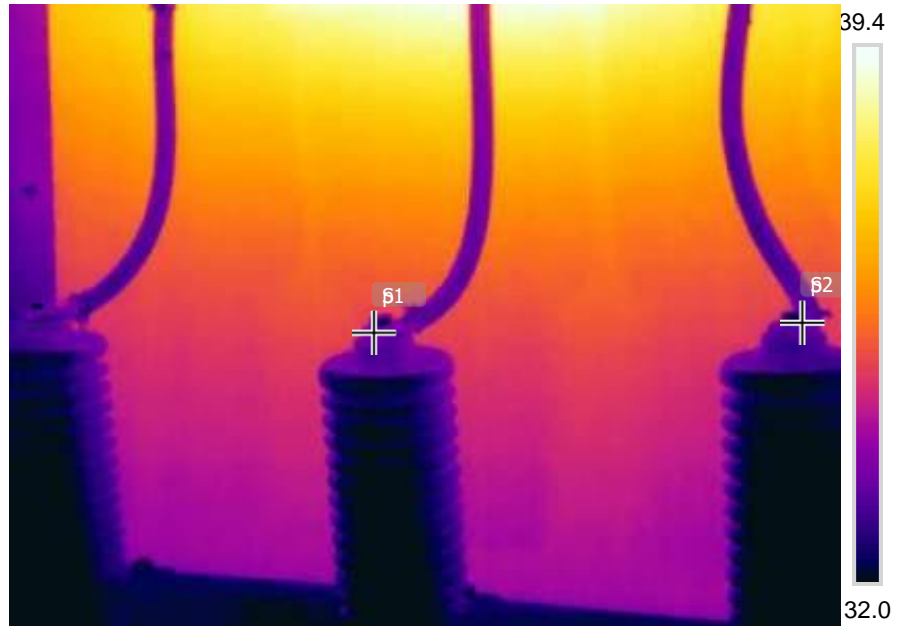
Measurements

Sp1	33.5°C
Sp2	33.3°C
Dt1	Sp1 - Sp2 0.2°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20002:32:01AM



IR\_47713.jpg

FLIRT530

79314659

7/6/20002:32:01AM



IR\_47713.jpg

FLIRT530

79314659

**DESCRIPTION:LIGHTNINGARRESTERS**

**LOCATION:SUBSTATION3( 1500KVA)**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**



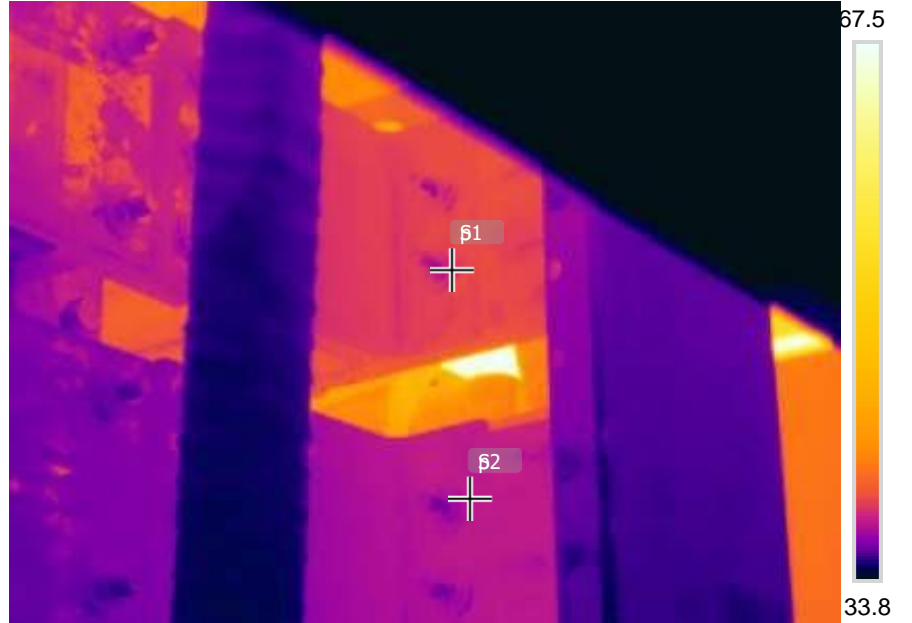
Measurements

Sp1		38.4°C
Sp2		37.7°C
Dt1	Sp1 - Sp2	0.7°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20002:35:39AM



IR\_47714.jpg

FLIRT530

79314659

7/6/20002:35:39AM



IR\_47714.jpg

FLIRT530

79314659

**DESCRIPTION:SECONDARYSIDE**

**LOCATION:SUBSTATION3( 1500KVA)**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

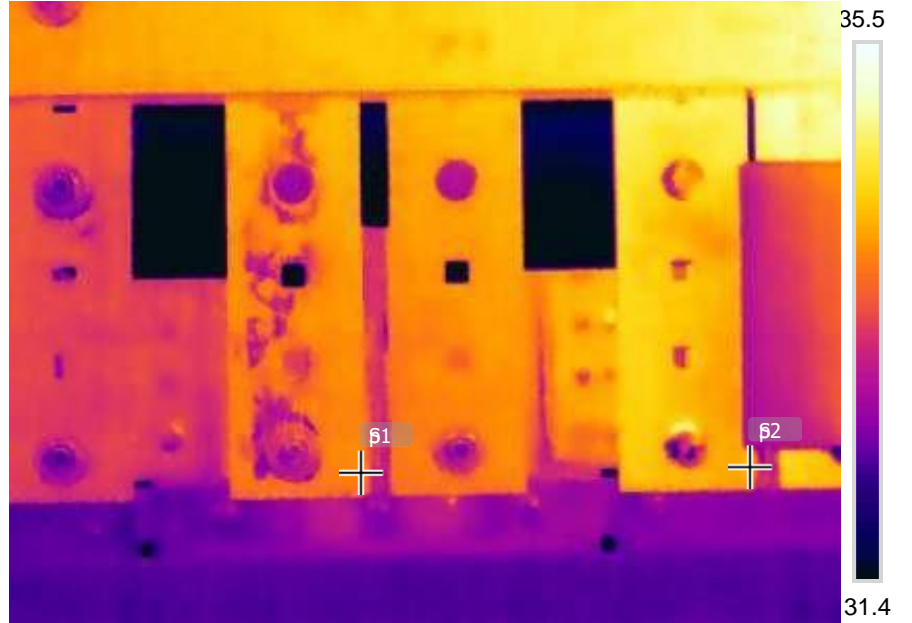
Measurements

Sp1		33.9°C
Sp2		34.2°C
Dt1	Sp1 - Sp2	-0.3°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20002:35:57AM

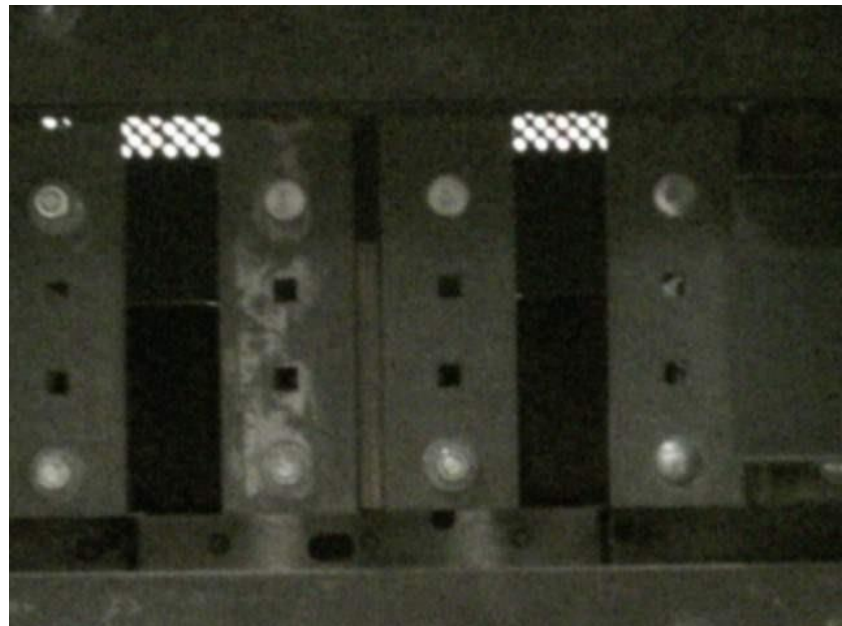


IR\_47715.jpg

FLIRT530

79314659

7/6/20002:35:57AM



IR\_47715.jpg

FLIRT530

79314659

**DESCRIPTION:MINBREAKER**

**LOCATION:SUBSTATION3( 1500KVA)**

**CONDITION:NORML**

**RECOBNDATIONACTION:NOACTIONREQUIRED**

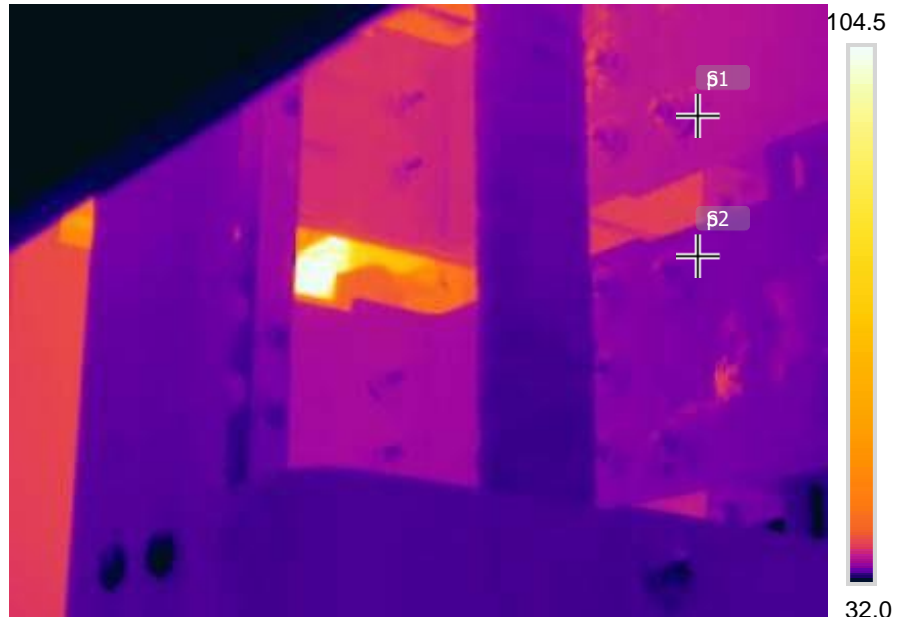
Measurements

Sp1	35.2°C
Sp2	34.5°C
Dt1	Sp1 - Sp2 0.7°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20002:38:31AM



IR\_47716.jpg

FLIRT530

79314659

7/6/20002:38:31AM



IR\_47716.jpg

FLIRT530

79314659

**DESCRIPTION:SECONDARYSIDE**

**LOCATION:SUBSTATION4( 1500KVA)**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

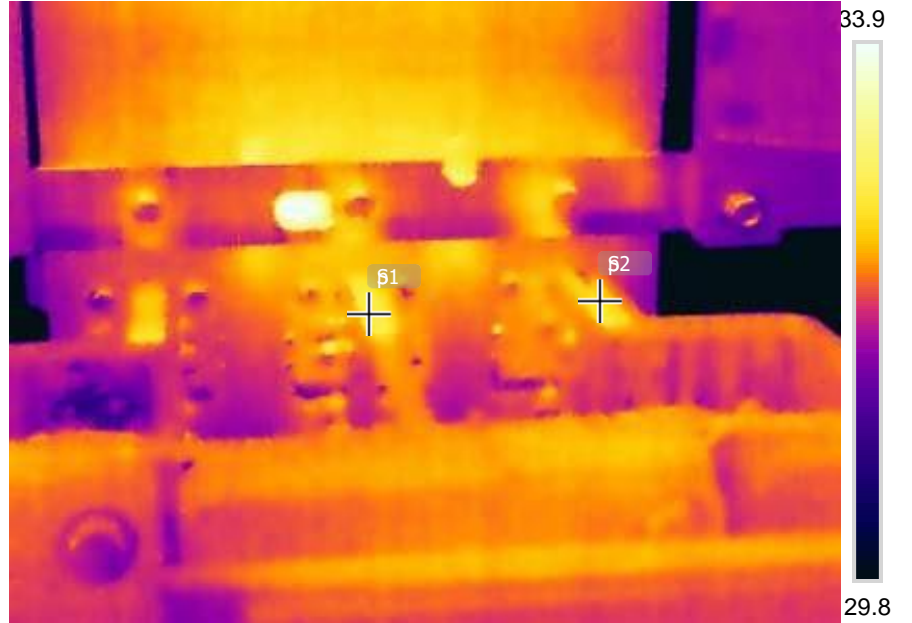
Measurements

Sp1	32.8°C
Sp2	32.6°C
Dt1	Sp1 - Sp2 0.2°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20002:38:45AM



IR\_47717.jpg

FLIRT530

79314659

7/6/20002:38:45AM



IR\_47717.jpg

FLIRT530

79314659

**DESCRIPTION:MINBREAKER**

**LOCATION:SUBSTATION4( 1500KVA)**

**CONDITION:NORMAL**

**RECOEMNDATIONACTION:NOACTIONREQUIRED**

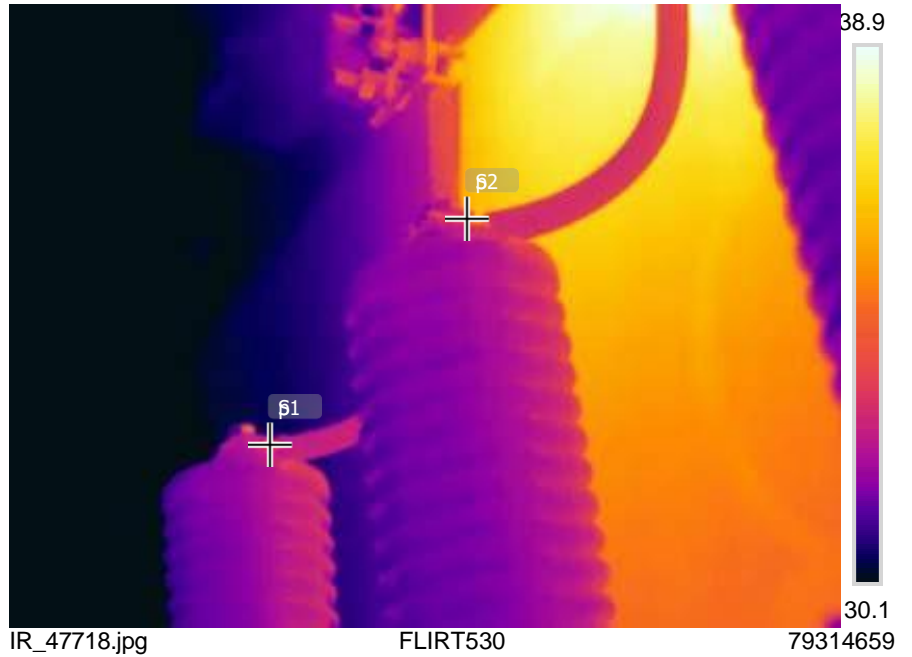
Measurements

Sp1	34.3°C
Sp2	33.7°C
Dt1	Sp1 - Sp2 0.6°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20002:41:58AM



7/6/20002:41:58AM



**DESCRIPTION:LIGHTNINGARRESTERS**

**LOCATION:SUBSTATION4( 1500KVA)**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

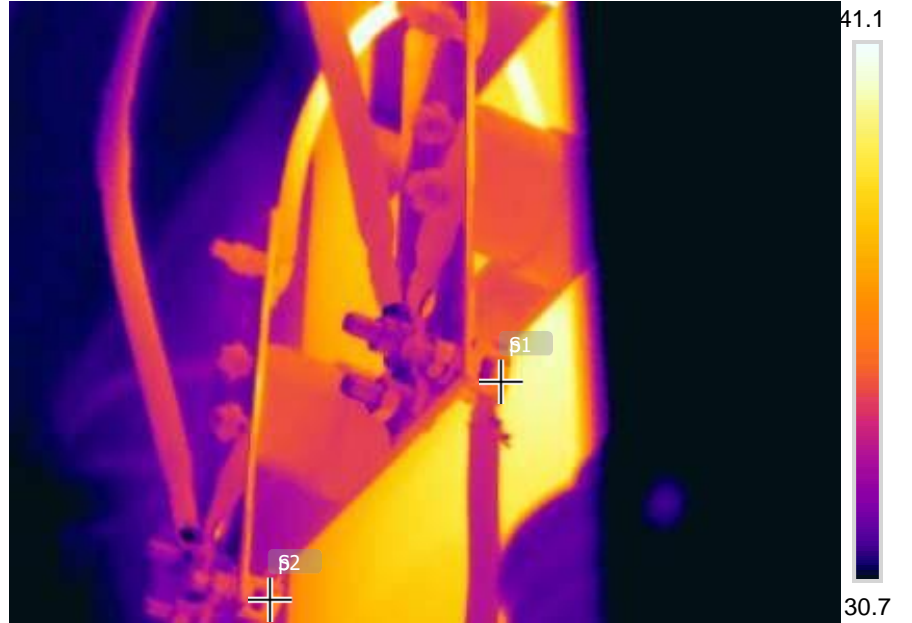
Measurements

Sp1		35.9°C
Sp2		35.6°C
Dt1	Sp1 - Sp2	0.2°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20002:42:18AM



IR\_47719.jpg

FLIRT530

79314659

7/6/20002:42:18AM



IR\_47719.jpg

FLIRT530

79314659

**DESCRIPTION:PRIMARYSIDE**

**LOCATION:SUBSTATION4( 1500KVA)**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

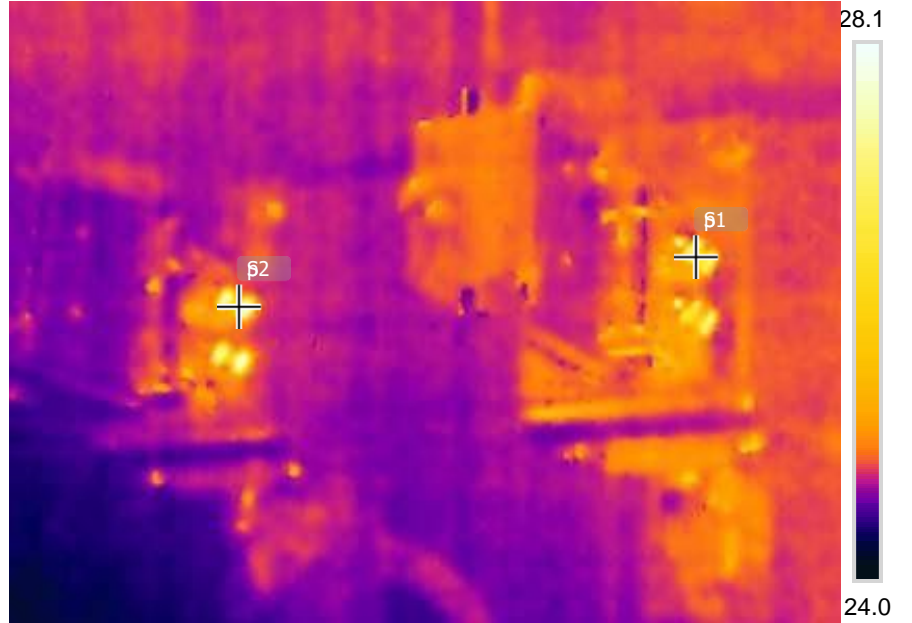
Measurements

Sp1	26.8°C
Sp2	27.0°C
Dt1	Sp1 - Sp2 -0.2°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20002:55:22AM



IR\_47720.jpg

FLIRT530

79314659

7/6/20002:55:22AM



IR\_47720.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR4**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

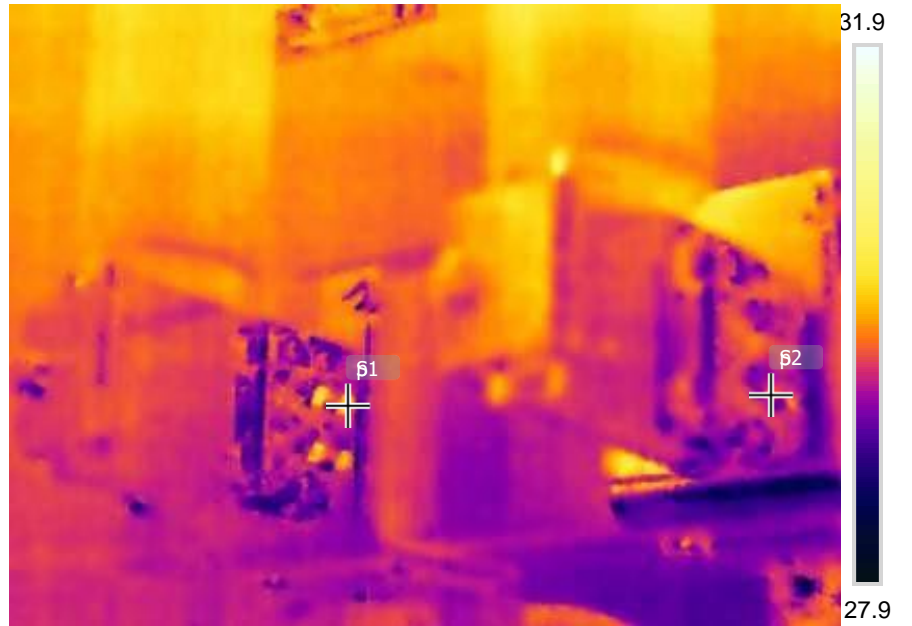
Measurements

Sp1		30.1°C
Sp2		29.9°C
Dt1	Sp1 - Sp2	0.2°C

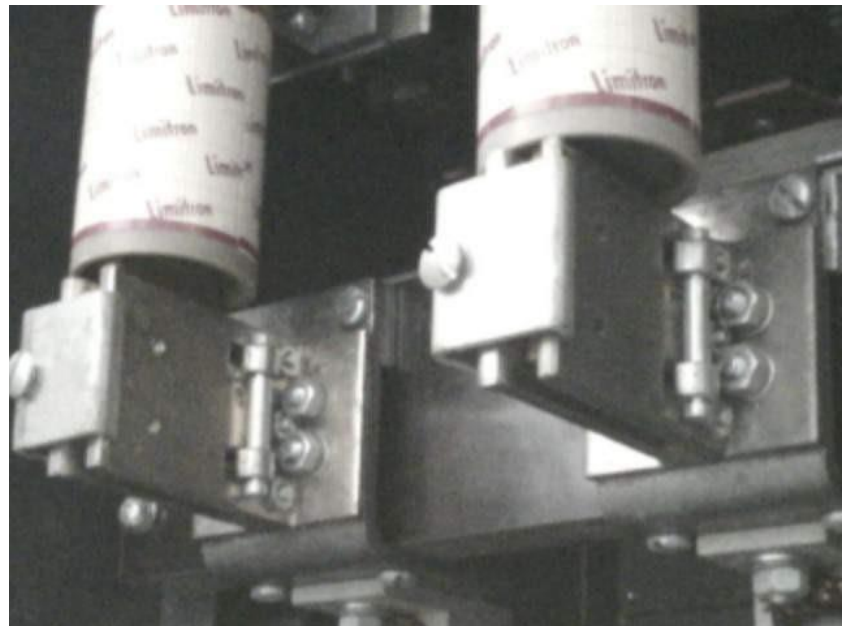
Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20002:57:19AM



7/6/20002:57:19AM



**DESCRIPTION:BUSDUCT**

**LOCATION:FLOORS**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**



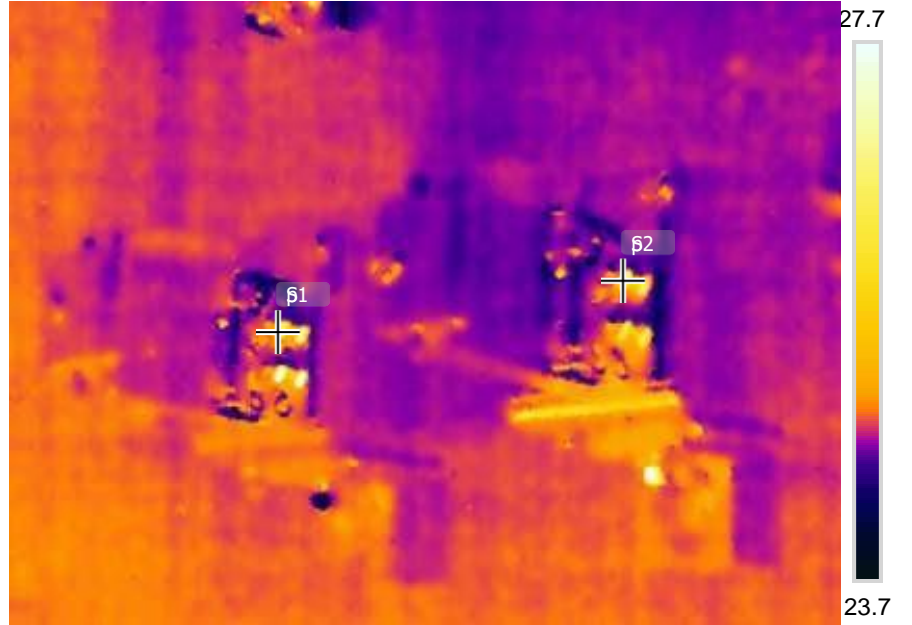
Measurements

Sp1		26.8°C
Sp2		27.0°C
Dt1	Sp1 - Sp2	-0.2°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20002:59:22AM



IR\_47722.jpg

FLIRT530

79314659

7/6/20002:59:22AM



IR\_47722.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR6**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

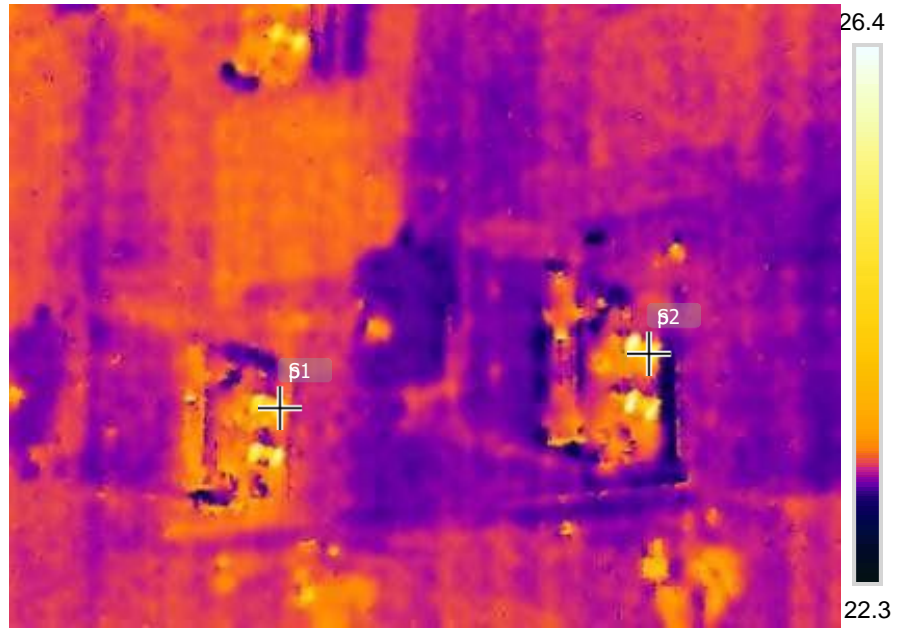
Measurements

Sp1	25.3°C
Sp2	25.1°C
Dt1	Sp1 - Sp2 0.2°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:01:14AM

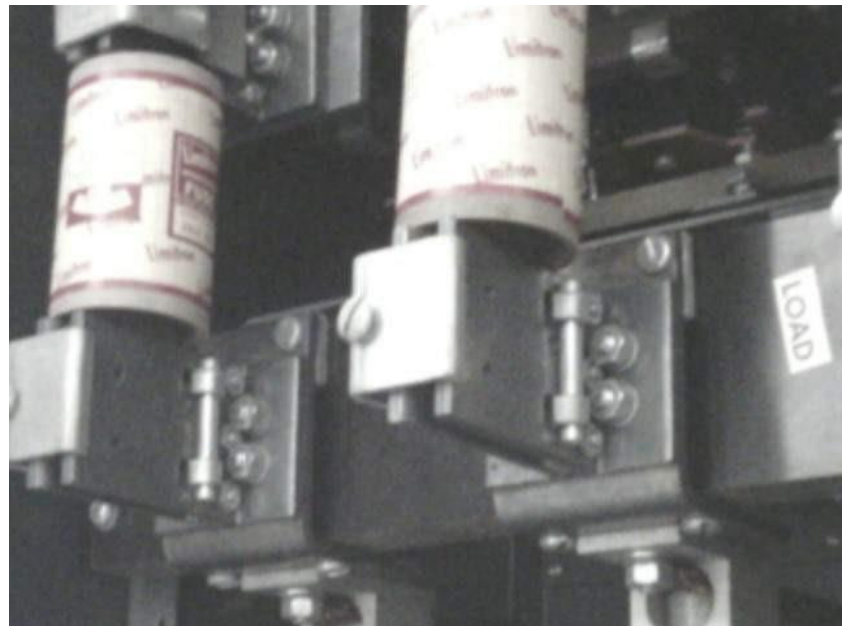


IR\_47723.jpg

FLIRT530

79314659

7/6/20003:01:14AM



IR\_47723.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR7**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

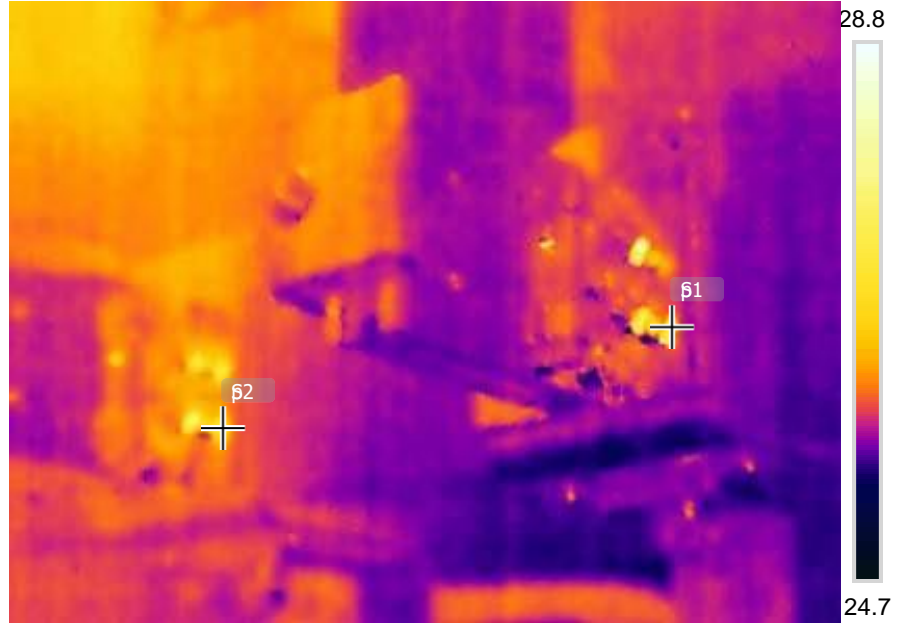
Measurements

Sp1	27.5°C
Sp2	27.2°C
Dt1	Sp1 - Sp2 0.3°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:03:31AM



IR\_47724.jpg

FLIRT530

79314659

7/6/20003:03:31AM



IR\_47724.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR8**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

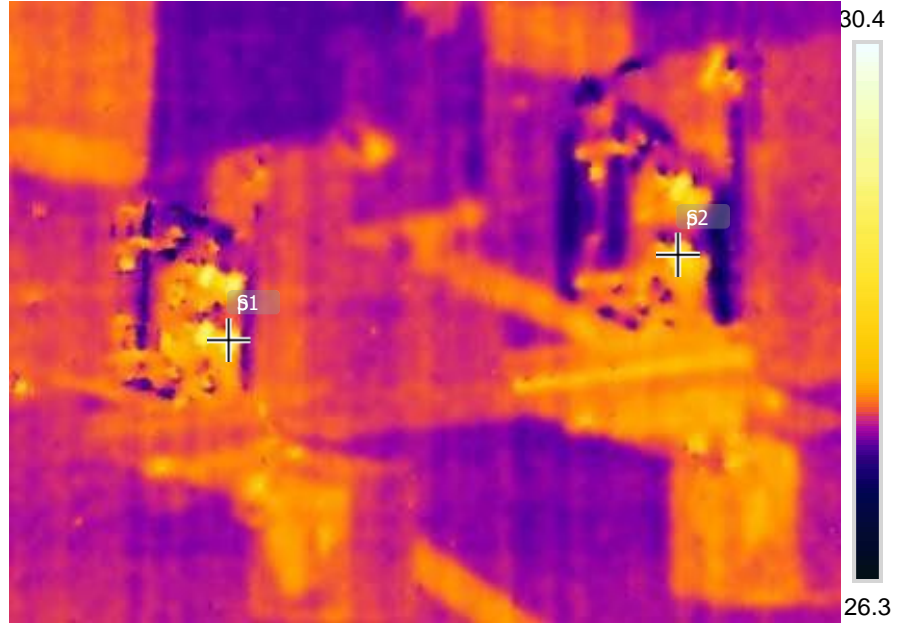
Measurements

Sp1	29.1°C
Sp2	28.7°C
Dt1	Sp1 - Sp2 0.4°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:05:17AM

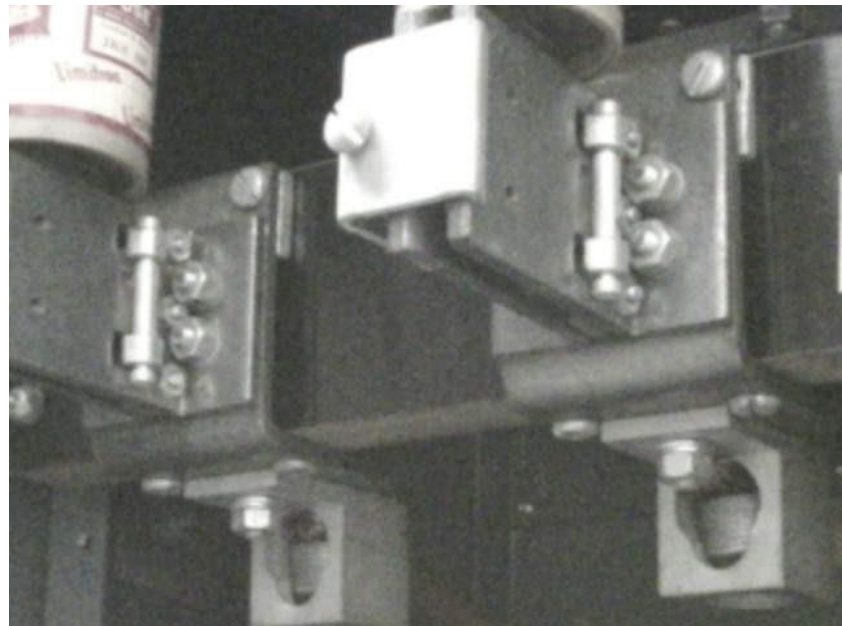


IR\_47725.jpg

FLIRT530

79314659

7/6/20003:05:17AM



IR\_47725.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR9**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1	25.7°C
Sp2	25.9°C
Dt1	Sp1 - Sp2 -0.2°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:07:42AM



IR\_47726.jpg

FLIRT530

79314659

7/6/20003:07:42AM



IR\_47726.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR10**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

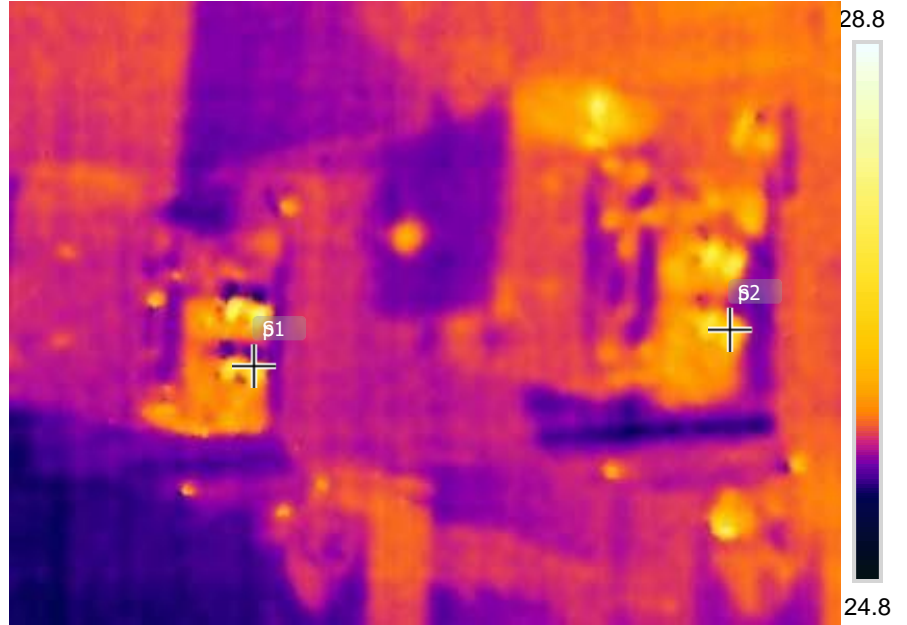
Measurements

Sp1		26.7°C
Sp2		27.0°C
Dt1	Sp1 - Sp2	-0.3°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:09:18AM



IR\_47727.jpg

FLIRT530

79314659

7/6/20003:09:18AM



IR\_47727.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR12**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

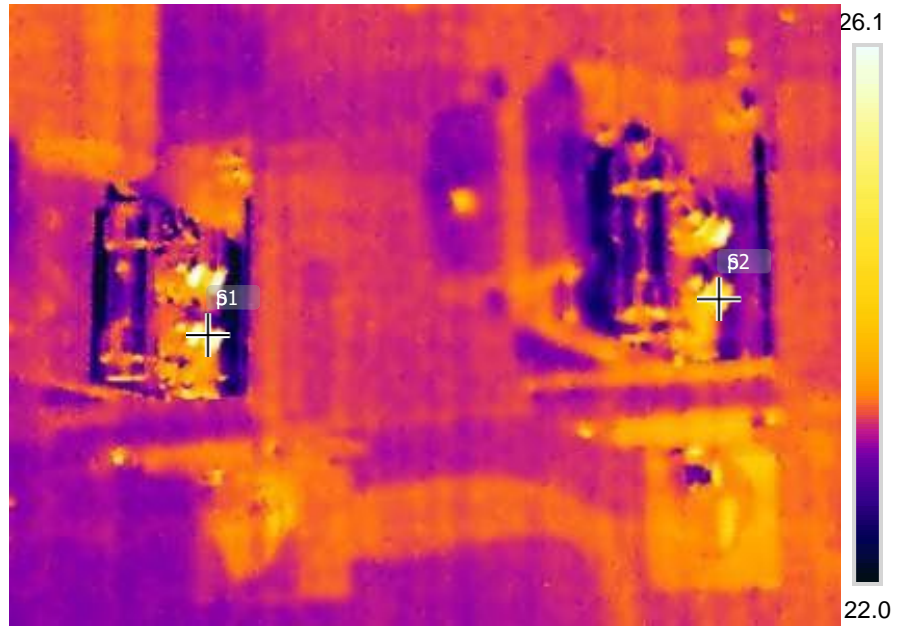
Measurements

Sp1		25.2°C
Sp2		25.1°C
Dt1	Sp1 - Sp2	0.1°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20003:11:51AM

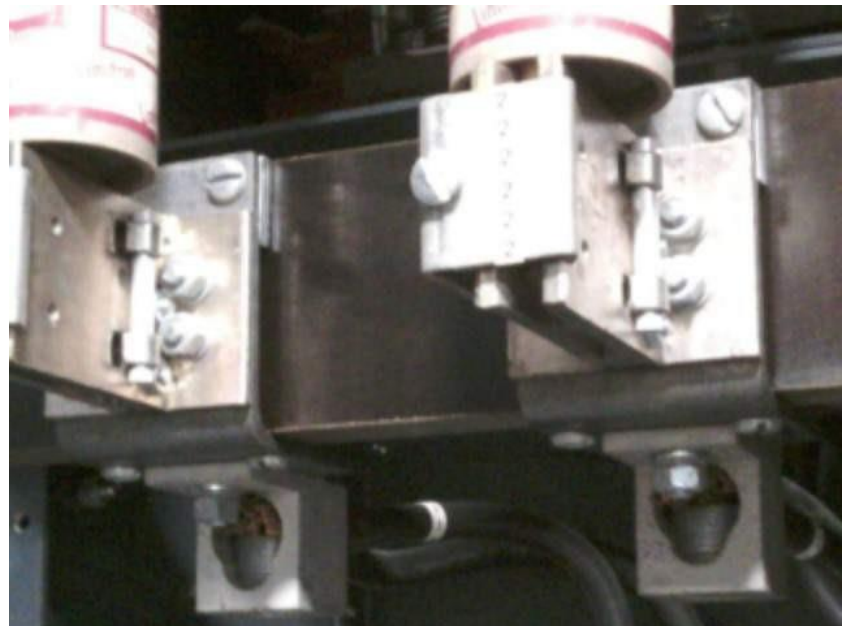


IR\_47728.jpg

FLIRT530

79314659

7/6/20003:11:51AM



IR\_47728.jpg

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**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR14**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

Measurements

Sp1		27.4°C
Sp2		27.7°C
Dt1	Sp1 - Sp2	-0.3°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:14:13AM

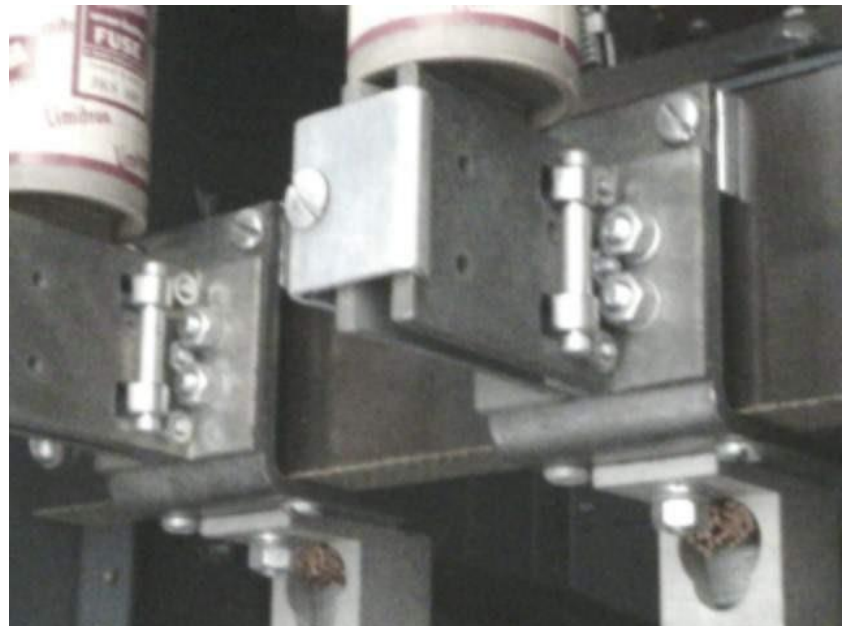


IR\_47729.jpg

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IR\_47729.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR15**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**



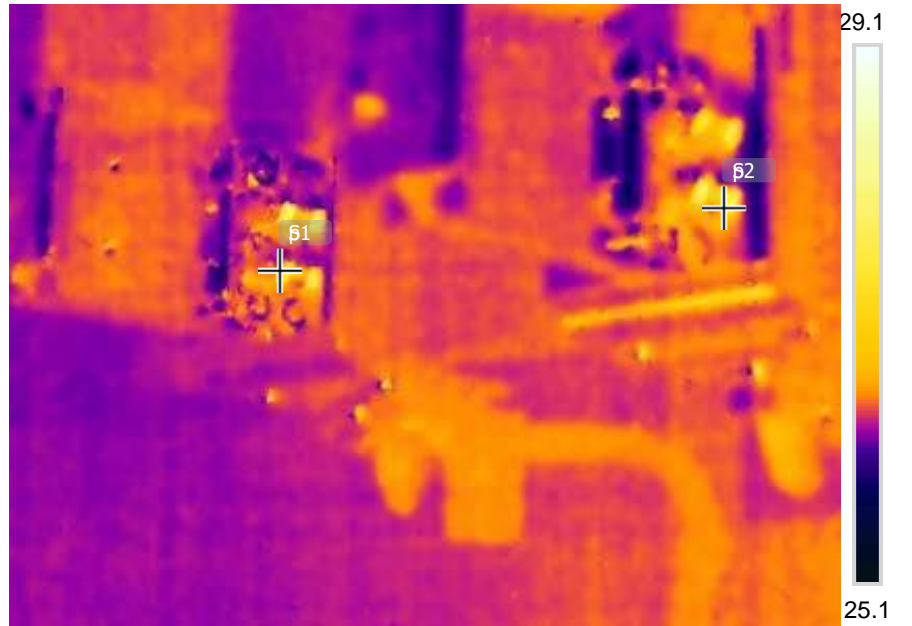
Measurements

Sp1		27.1°C
Sp2		27.5°C
Dt1	Sp1 - Sp2	-0.4°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20003:16:25AM

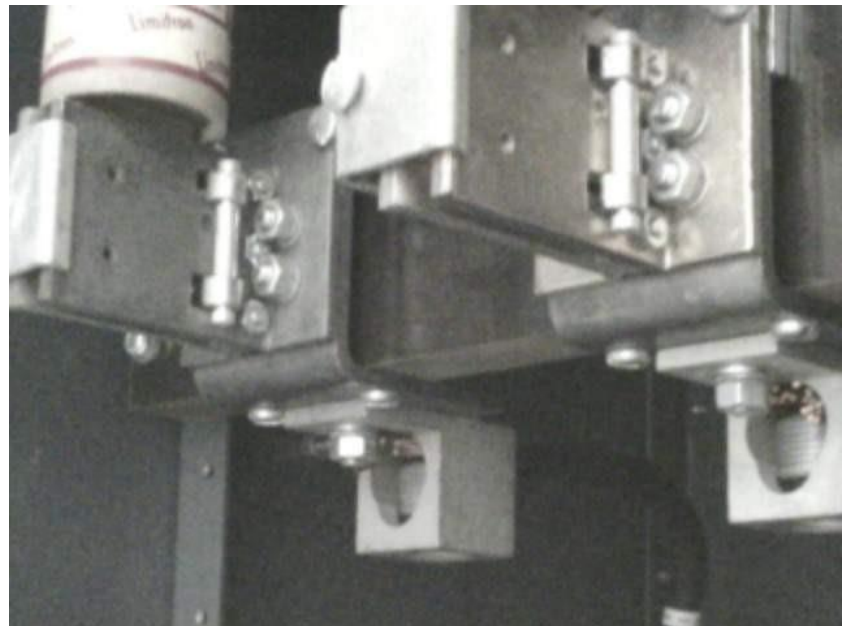


IR\_47730.jpg

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7/6/20003:16:25AM



IR\_47730.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR16**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

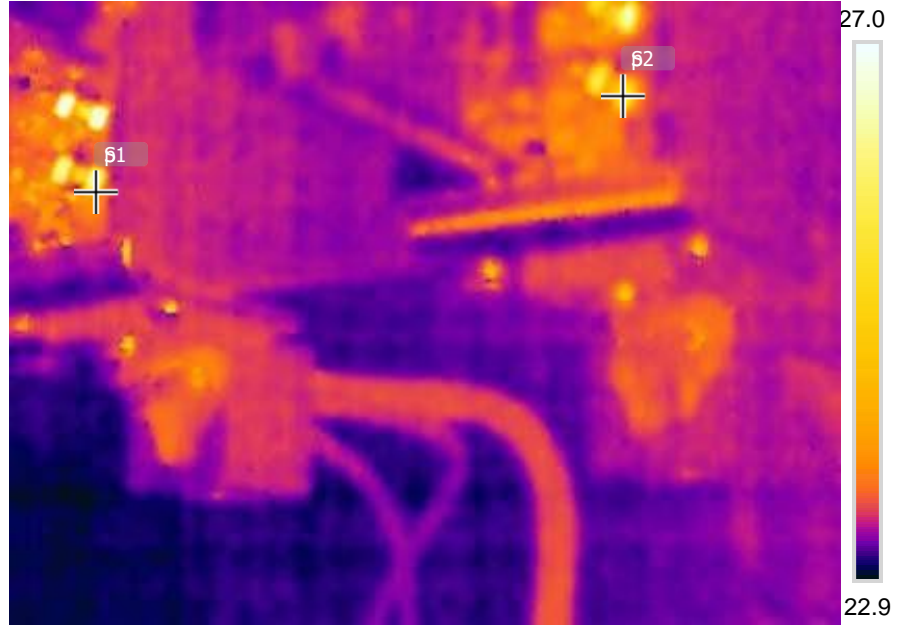
Measurements

Sp1	25.6°C
Sp2	25.4°C
Dt1	Sp1 - Sp2 0.3°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:17:47AM



IR\_47731.jpg

FLIRT530

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7/6/20003:17:47AM



IR\_47731.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR17**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

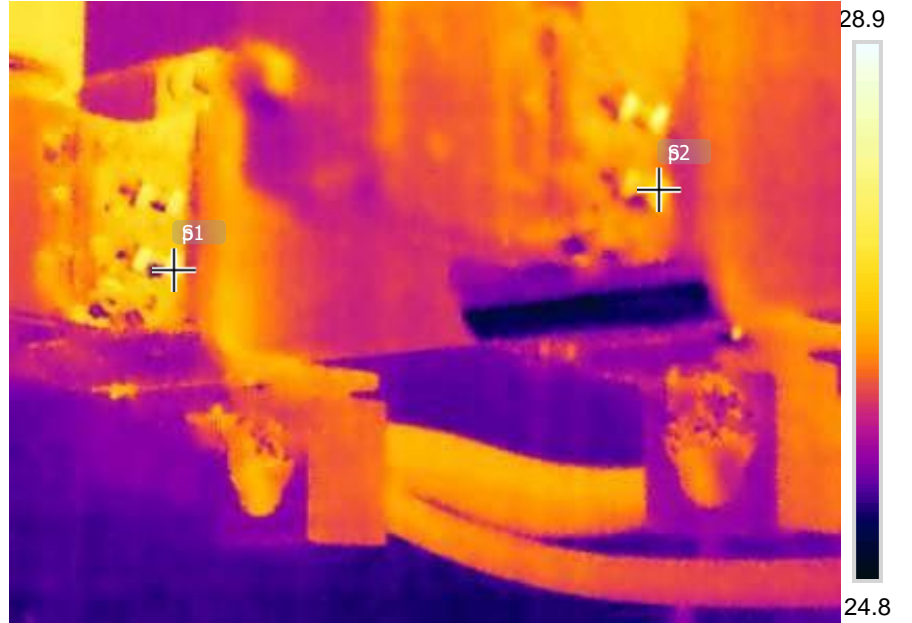
Measurements

Sp1	27.7°C
Sp2	27.3°C
Dt1	Sp1 - Sp2 0.5°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:19:43AM

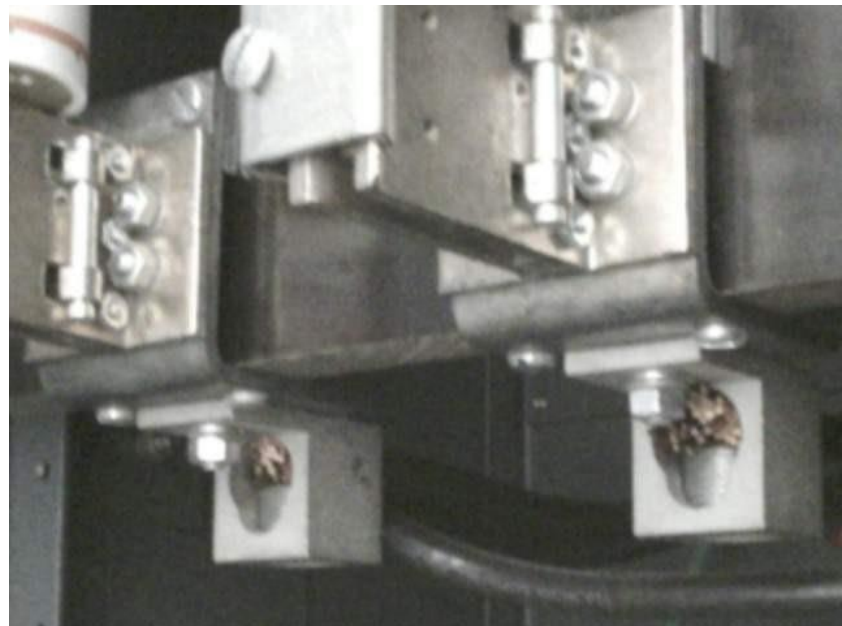


IR\_47732.jpg

FLIRT530

79314659

7/6/20003:19:43AM



IR\_47732.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR18**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

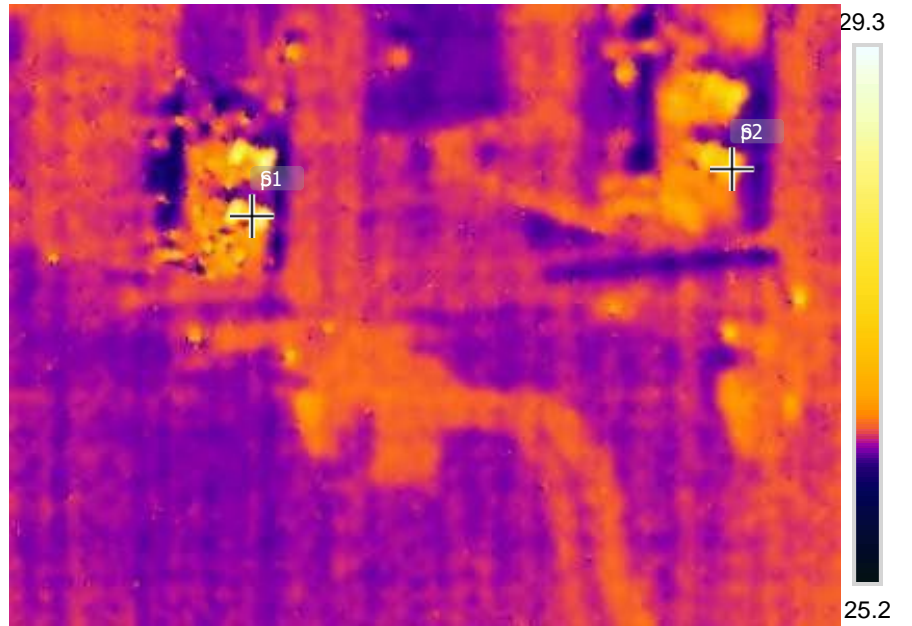
Measurements

Sp1	27.6°C
Sp2	27.1°C
Dt1	Sp1 - Sp2 0.5°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:21:50AM



IR\_47733.jpg

FLIRT530

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7/6/20003:21:50AM



IR\_47733.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR19**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

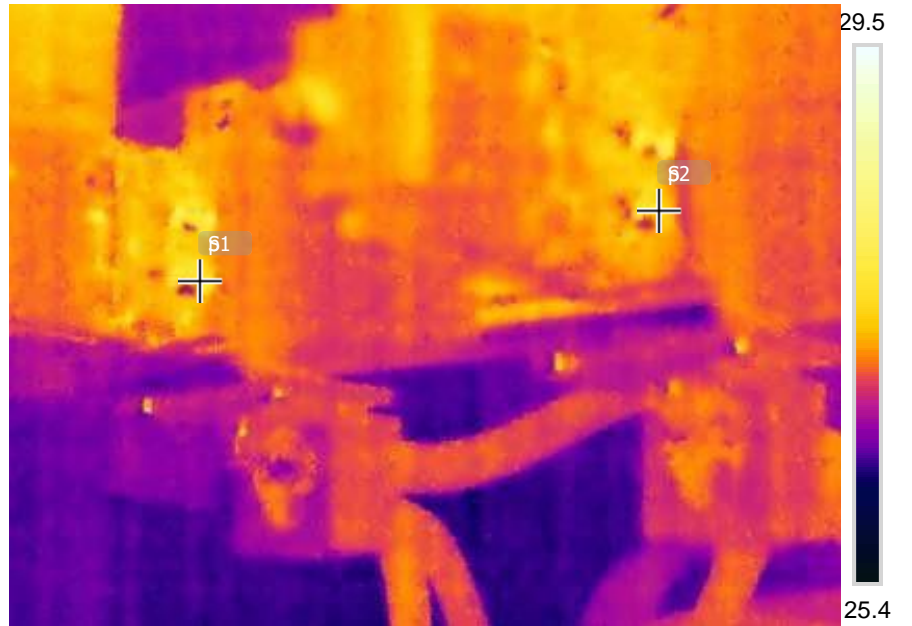
Measurements

Sp1	27.7°C
Sp2	27.5°C
Dt1	Sp1 - Sp2 0.2°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:23:15AM

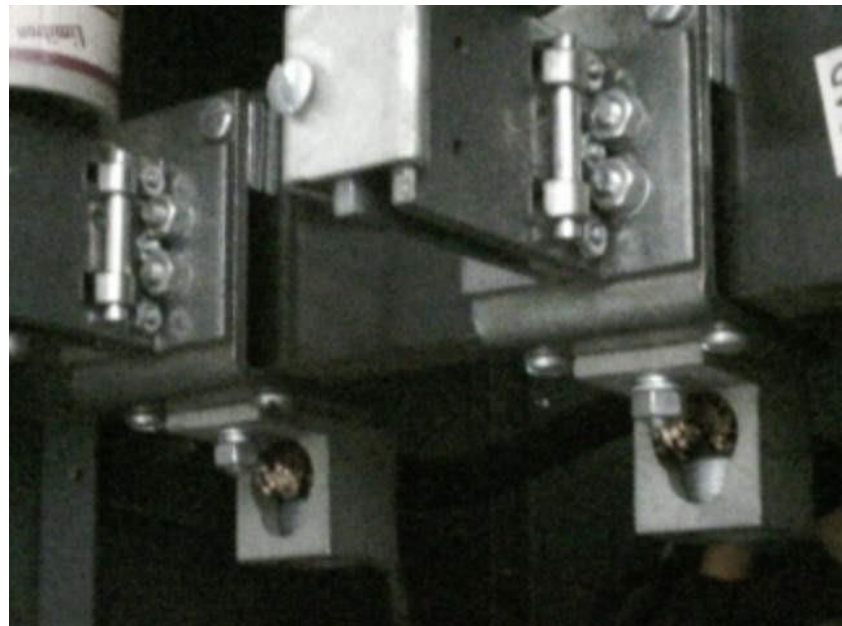


IR\_47734.jpg

FLIRT530

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IR\_47734.jpg

FLIRT530

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**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR20**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

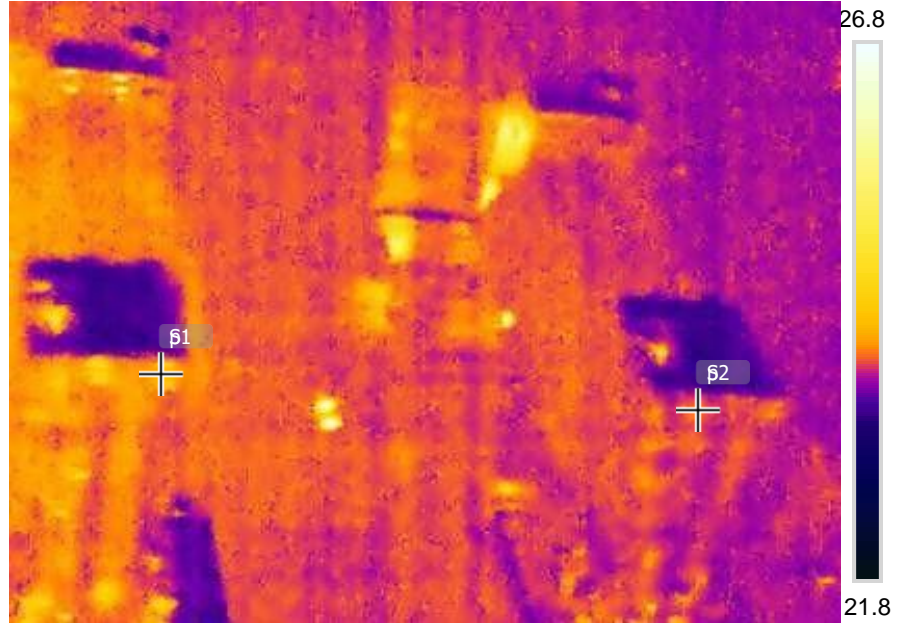
Measurements

Sp1	24.3°C
Sp2	24.0°C
Dt1	Sp1 - Sp2 0.3°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:24:55AM



IR\_47735.jpg

FLIRT530

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7/6/20003:24:55AM



IR\_47735.jpg

FLIRT530

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**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR21**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**

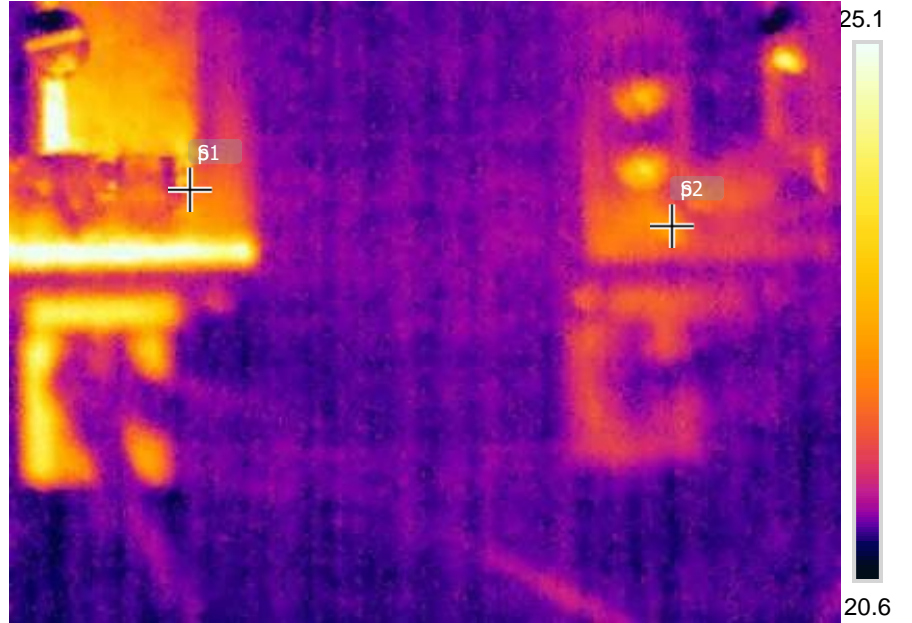
Measurements

Sp1		22.3°C
Sp2		22.6°C
Dt1	Sp1 - Sp2	-0.3°C

Parameters

Emissivity		0.95
Refl.temp.		30 °C

7/6/20003:26:10AM

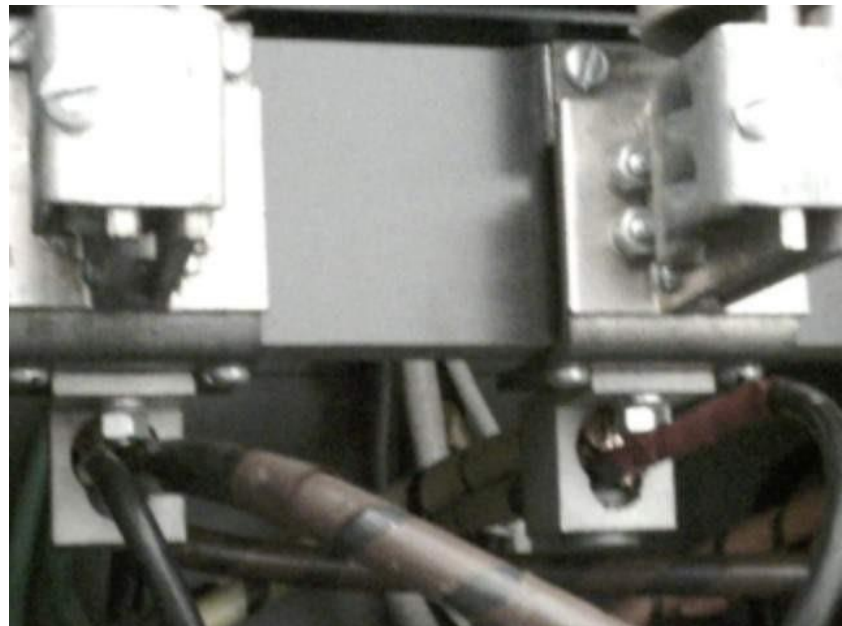


IR\_47736.jpg

FLIRT530

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IR\_47736.jpg

FLIRT530

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**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR22**

**CONDITION:NORMAL**

**RECOMMENDATIONACTION:NOACTIONREQUIRED**

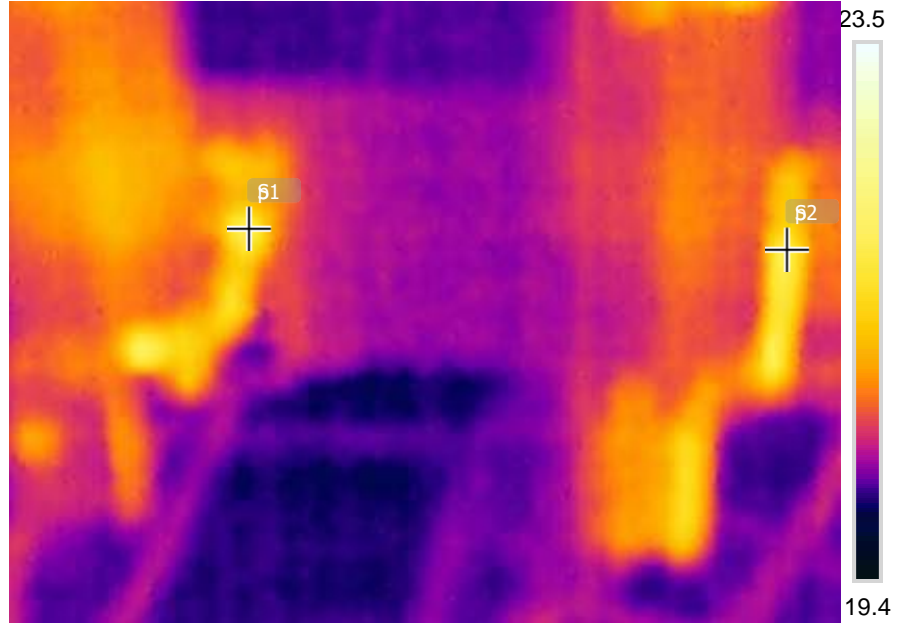
Measurements

Sp1	21.9°C
Sp2	21.9°C
Dt1	Sp1 - Sp2 0.1°C

Parameters

Emissivity	0.95
Refl.temp.	30 °C

7/6/20003:29:06AM



IR\_47737.jpg

FLIRT530

79314659

7/6/20003:29:06AM



IR\_47737.jpg

FLIRT530

79314659

**DESCRIPTION:BUSDUCT**

**LOCATION:FLOOR23**

**CONDITION:NORML**

**RECOMENDATIONACTION:NOACTIONREQUIRED**