

ภาคผนวกที่ 2-6  
รายงานการบำรุงรักษาระบบไฟฟ้า



# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร A

Date : JANUARY 15, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. : , 063-6538758



# AKS engineering power Co., Ltd.

51/8chonchop Villages, soi saimai 10,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

## Conditions status and meaning



อันตราย ต้องทำการแก้ไขอย่างเร่งด่วน



ไม่ปกติ ไม่สามารถแก้ไขได้ทันที จำเป็นต้องรออะไหล่เพื่อแก้ไข



เริ่มไม่ปกติ เป็นสัญญาณแจ้งเตือน สามารถใช้งานได้ ส่งผลการใช้งานกับอุปกรณ์ระยะยาว ควรพิจารณาทำการแก้ไข



ปกติ การทำงาน และสภาพโดยทั่วไปปกติ ควรตรวจสอบ และดูแลแนวโน้มในครั้งถัดไป

## SUMMARY TEST REPORTS

No.	Equipments name	Descriptions	Status
1	อาคาร A		
1.1	TR.	1 มีรอยแฟลสที่Bushing แรงสูง เฟส A,B 2 สายมีรอยไหม้ที่ เฟส A,B	
1.2	ตู้MDB	1. สภาพตู้โดยทั่วไปปกติ	
1.3	ACB	1. Cover Setting ETUไม่มี 2. Status charge sping หัก 3. Function Ground ปิดใช้งาน	
1.4	CAP BANK	1. หน้าจอ PFC เสื่อมสภาพ 2. สาย R didshard ชำรุด	
2	Grounding TR System		
2.1		1. ค่าGround ปกติ	



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1



2



3 Cover Setting ETUไม่มี



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19 Status charge spring หัก



20 หน้าจอ PFC เสริมสภาพ



21 สายมีรอยไหม้ที่ เฟส A,B

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## **Before Infrared Report**

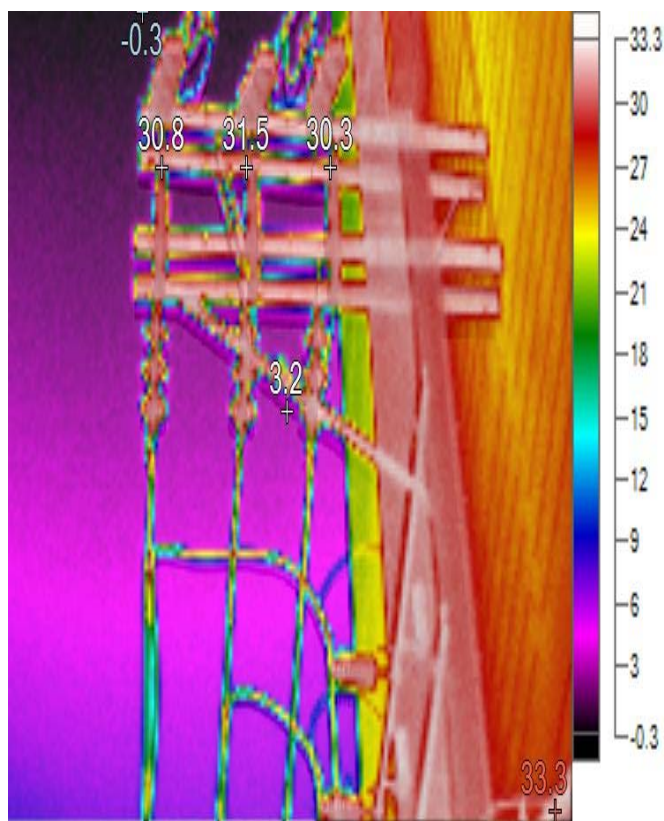
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Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคารA smart condo
Equipment	Drop Fuse	Equipment Name:	Drop Fuse
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000596.IS2

1/12/2024 9:25:14 AM



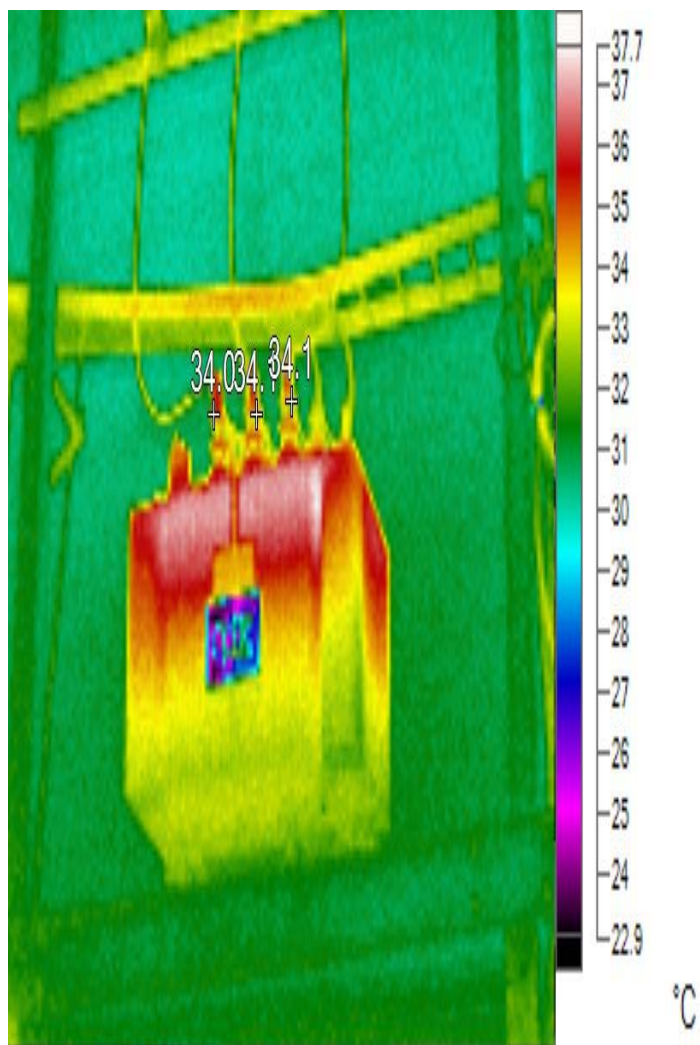
### Main Image Markers

Name	Temperature	Emissivity
Centerpoint	3.2°C	0.95
Hot	33.3°C	0.95
Cold	-0.3°C	0.95
P0	30.8°C	0.95
P1	31.5°C	0.95
P2	30.3°C	0.95



Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคาร A smart condo
Equipment	TR	Equipment Name:	TR อาคาร A
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000597.IS2

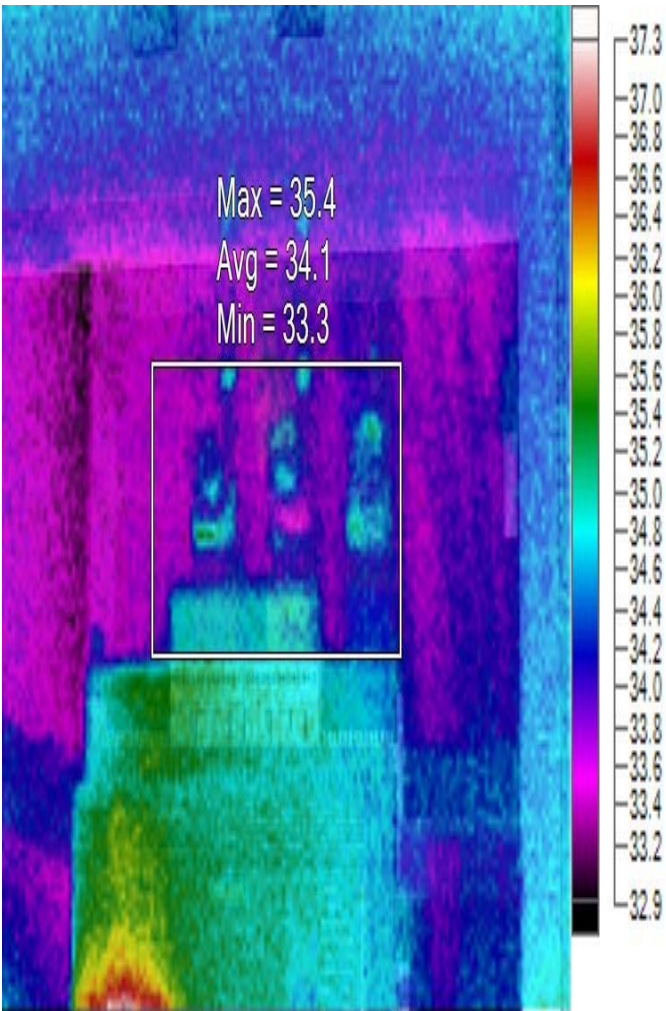
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### Main Image Markers

Name	Temperature	Emissivity
P0	34.0°C	0.95
P1	34.1°C	0.95
P2	34.1°C	0.95

Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคารA smart condo
Equipment	ACB	Equipment Name:	MAIN ACB
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000598.IS2

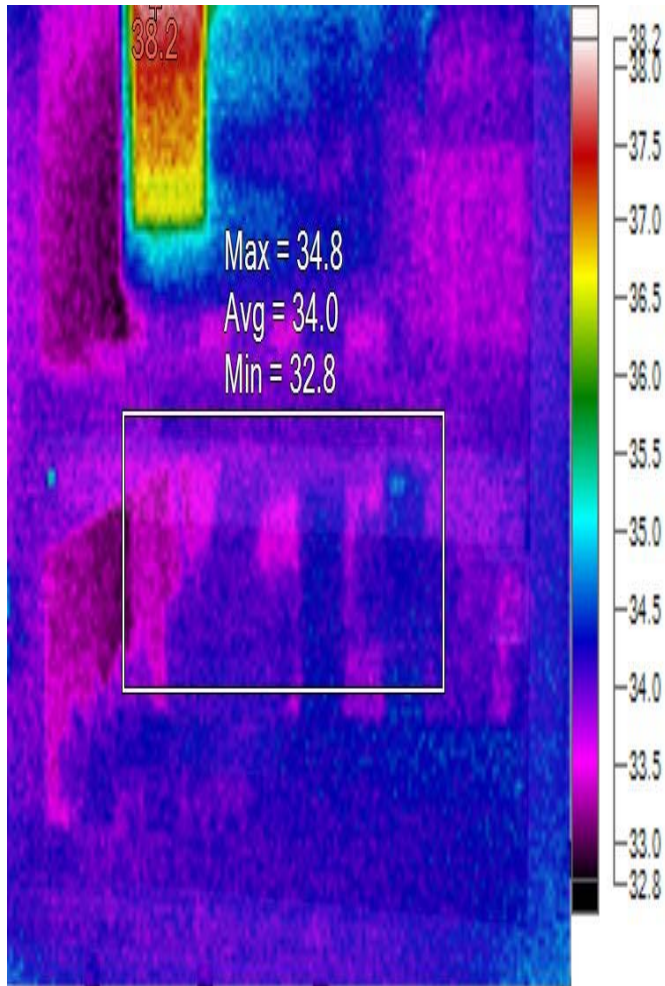
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### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	34.1°C	33.3°C	35.4°C	0.95	0.40

Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคารA smart condo
Equipment	ACB	Equipment Name:	MAIN ACB
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000599.IS2

1/12/2024 9:30:07 AM

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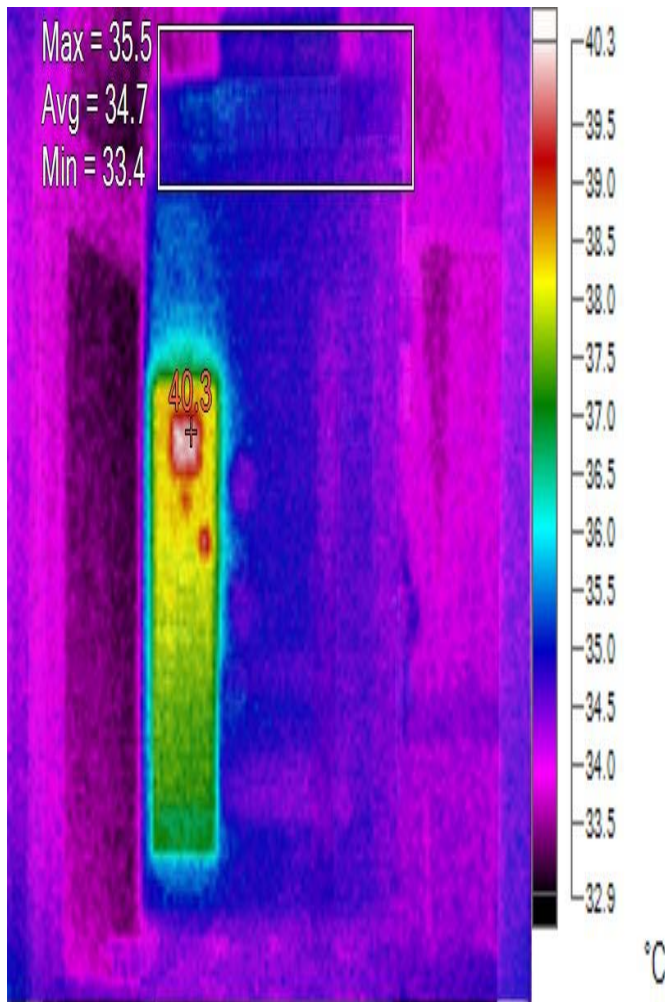
Name	Avg	Min	Max	Emissivity	St. Dev.
A0	34.0°C	32.8°C	34.8°C	0.95	0.29

Name	Temperature	Emissivity
Hot	38.2°C	0.95



Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคารA smart condo
Equipment	ACB	Equipment Name:	MAIN ACB
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000600.IS2

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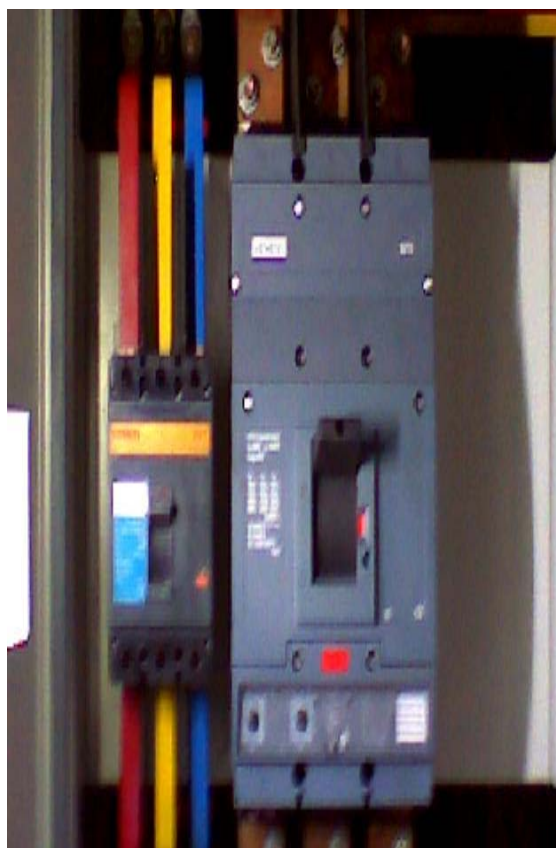
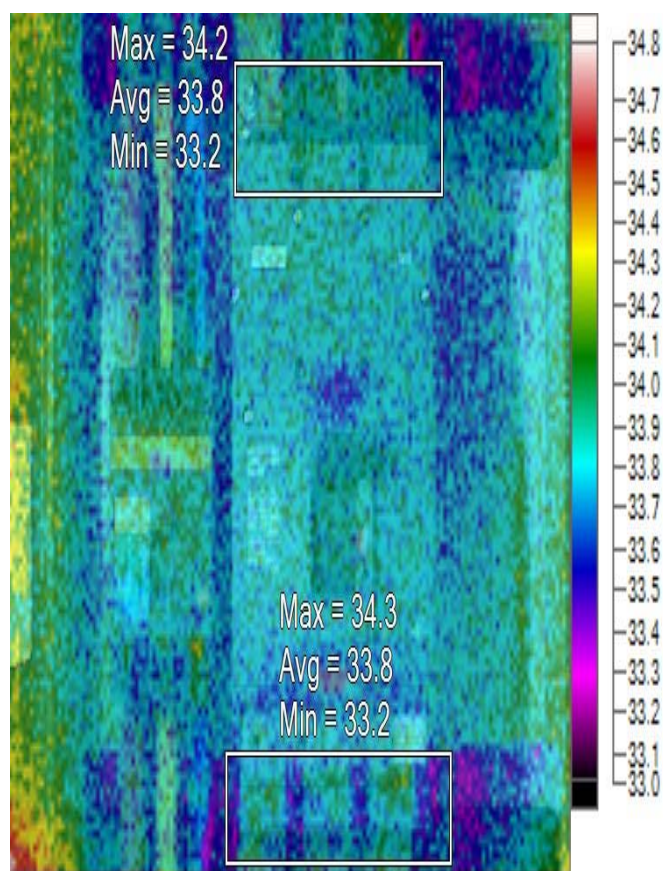
Name	Avg	Min	Max	Emissivity	St. Dev.
A0	34.7°C	33.4°C	35.5°C	0.95	0.39

Name	Temperature	Emissivity
Hot	40.3°C	0.95



Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคารA smart condo
Equipment	MCCB	Equipment Name:	MAIN CAP
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000601.IS2

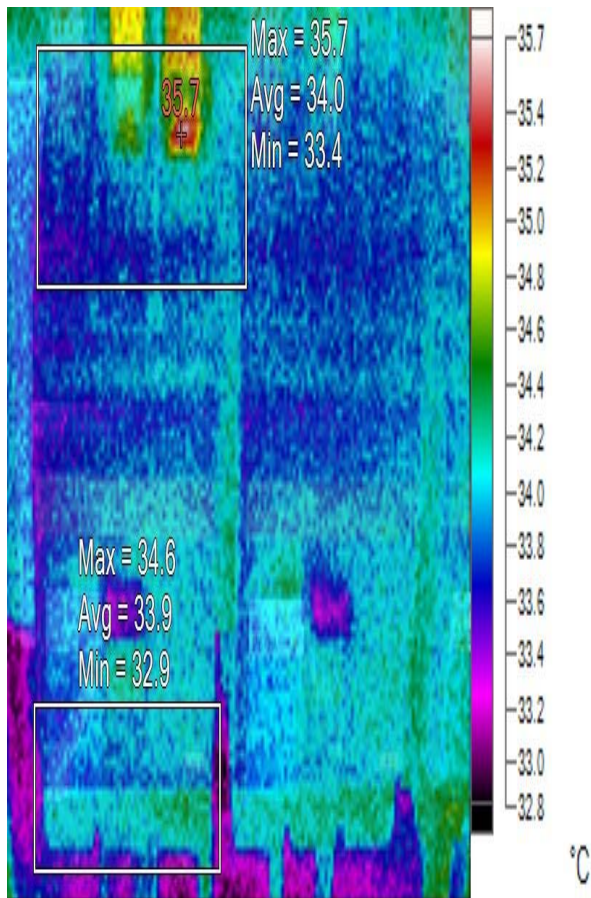
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### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	33.8°C	33.2°C	34.2°C	0.95	0.12
A1	33.8°C	33.2°C	34.3°C	0.95	0.17

Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคาร A smart condo
Equipment	MCCB	Equipment Name:	PP-1, PP-2
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000602.IS2

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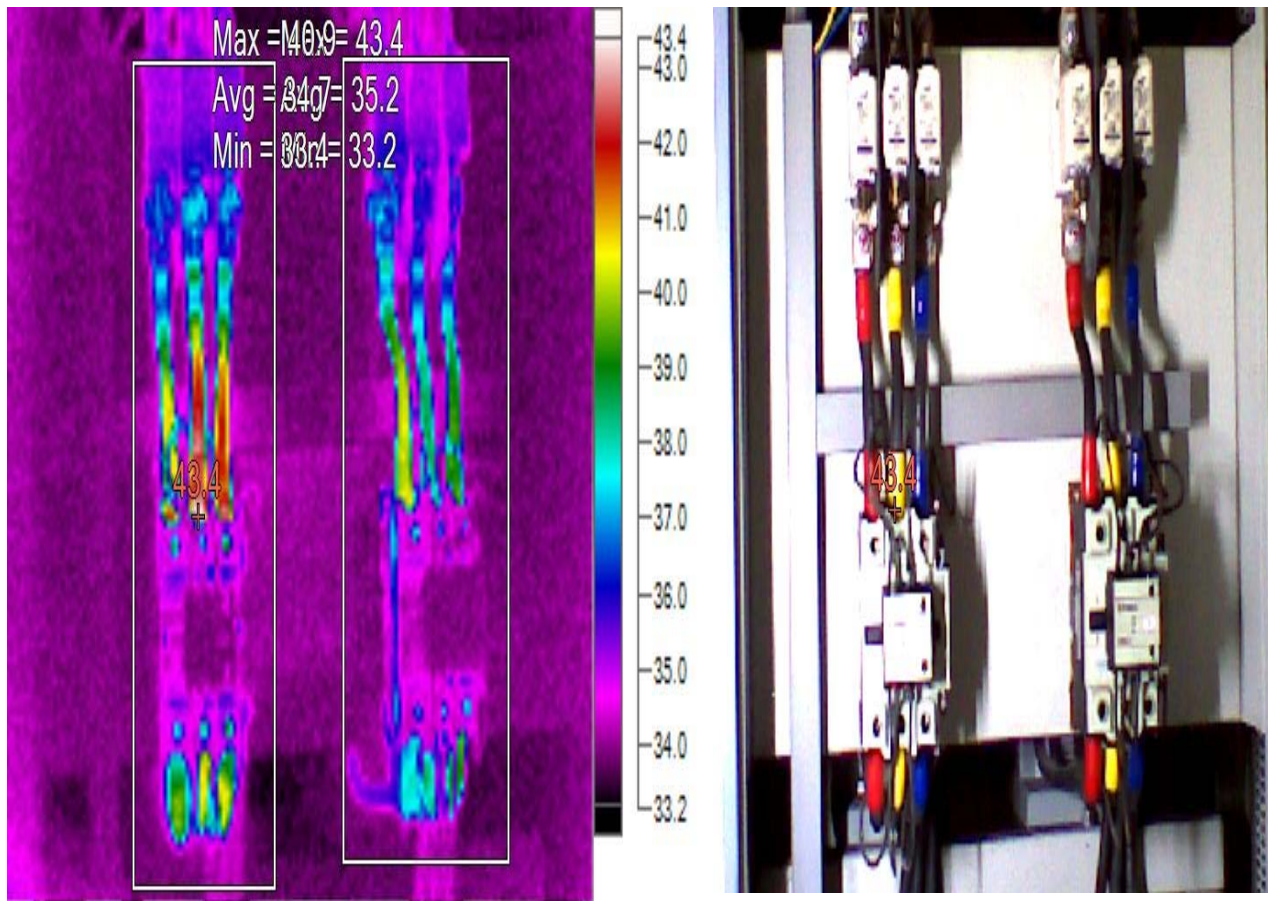
### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	34.0°C	33.4°C	35.7°C	0.95	0.36
A1	33.9°C	32.9°C	34.6°C	0.95	0.29

Name	Temperature	Emissivity
Hot	35.7°C	0.95

Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคาร A smart condo
Equipment	CAPBANK	Equipment Name:	Step1,2
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000603.IS2

1/12/2024 9:32:34 AM

## Main Image Markers

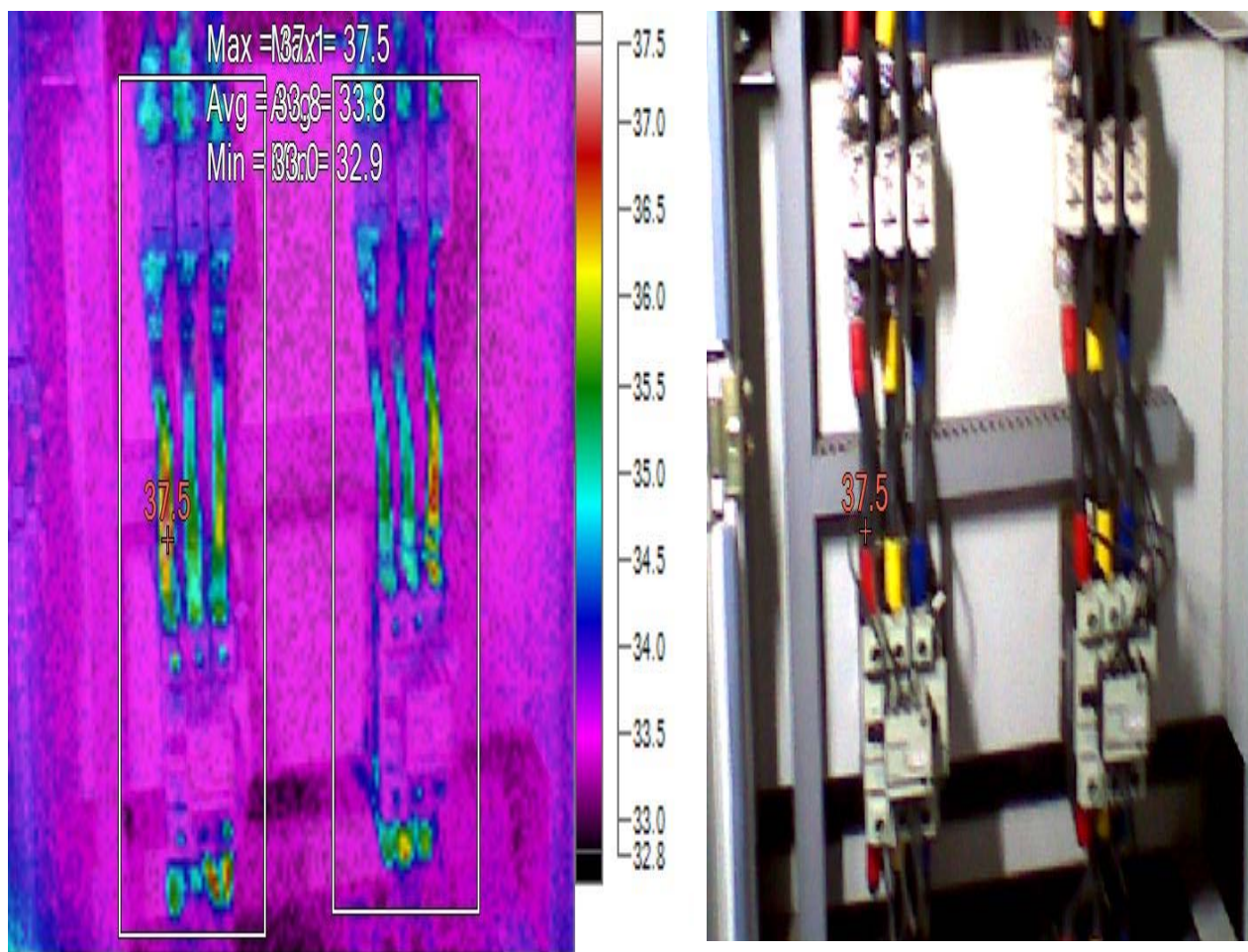
Name	Avg	Min	Max	Emissivity	St. Dev.
A0	35.2°C	33.2°C	43.4°C	0.95	1.95
A1	34.7°C	33.4°C	40.9°C	0.95	1.38

Name	Temperature	Emissivity
Hot	43.4°C	0.95



Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคาร A smart condo
Equipment	CAPBANK	Equipment Name:	Step 3,4
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000604.IS2

1/12/2024 9:32:44 AM

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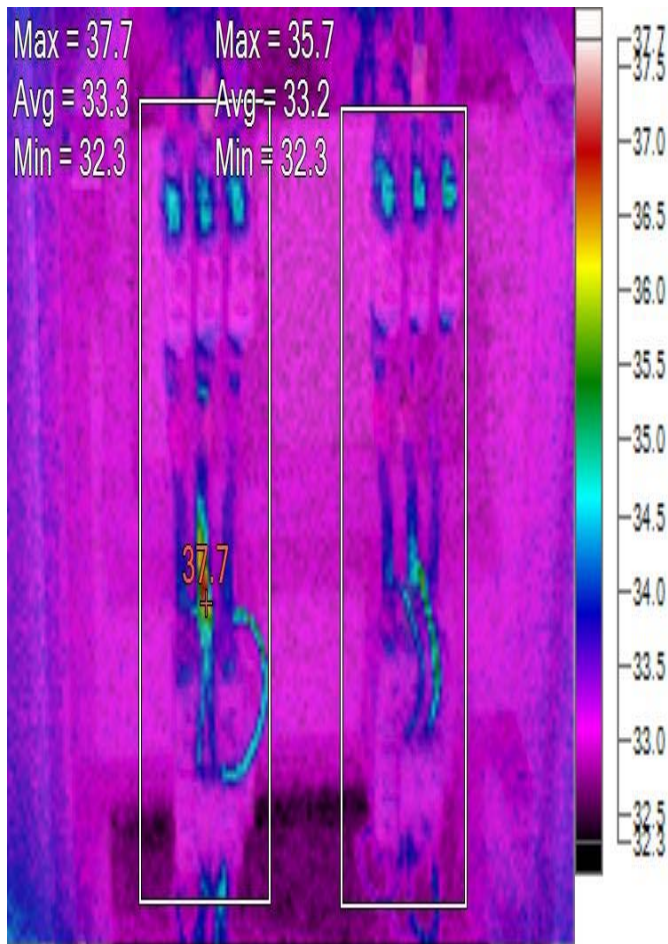
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A0	33.8°C	32.9°C	37.5°C	0.95	0.64
A1	33.8°C	33.0°C	37.1°C	0.95	0.56

Name	Temperature	Emissivity
Hot	37.5°C	0.95



Inspected By: ATIWAN B.

Inspection Date:	12/1/2024	Location	อาคารA smart condo
Equipment	CAPBANK	Equipment Name:	Step5,6
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000605.IS2

1/12/2024 9:32:53 AM

### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	33.3°C	32.3°C	37.7°C	0.95	0.48
A1	33.2°C	32.3°C	35.7°C	0.95	0.36

Name	Temperature	Emissivity
Hot	37.7°C	0.95

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## **After Infrared Report**

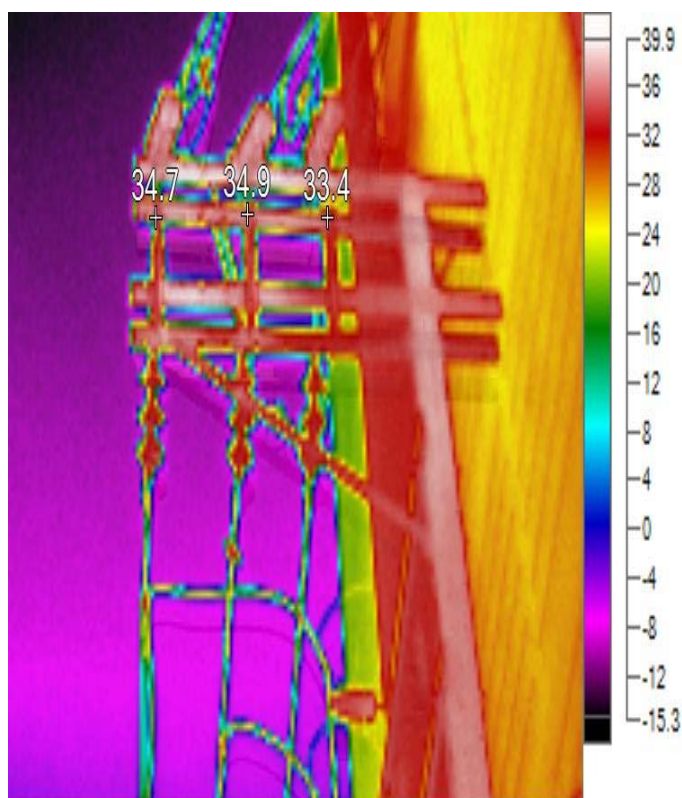
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Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคารA smart condo
Equipment	Drop Fuse	Equipment Name:	Drop Fuse
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000724.IS2

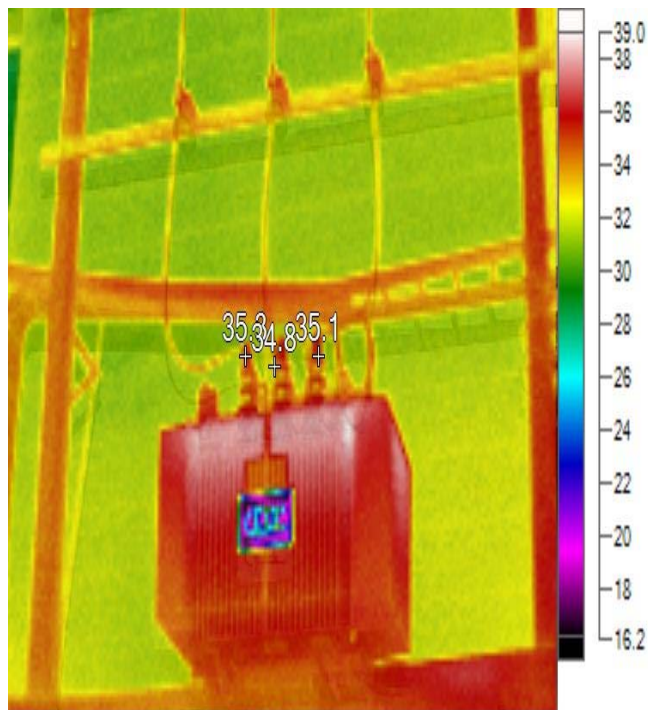
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### Main Image Markers

Name	Temperature	Emissivity
P0	34.7°C	0.95
P1	34.9°C	0.95
P2	33.4°C	0.95

Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคาร A smart condo
Equipment	TR	Equipment Name:	TR อาคาร A
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000725.IS2

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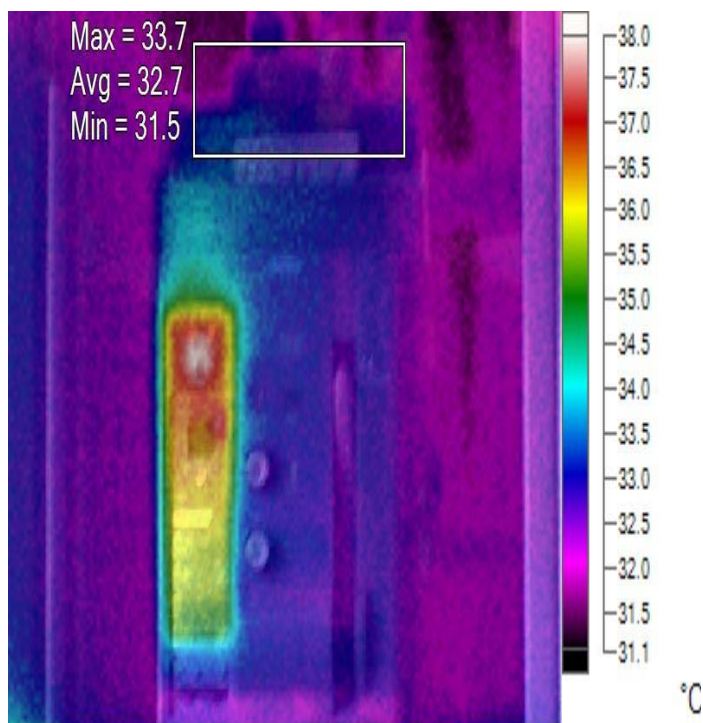
### Main Image Markers

Name	Temperature	Emissivity
P0	35.3°C	0.95
P1	34.8°C	0.95
P2	35.1°C	0.95



Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคารA smart condo
Equipment	ACB	Equipment Name:	MAIN ACB
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000741.IS2

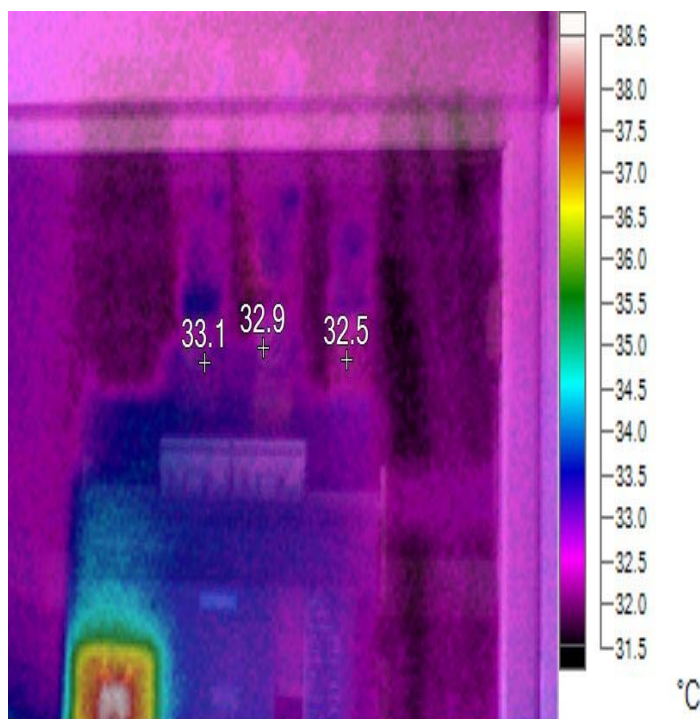
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### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	32.7°C	31.5°C	33.7°C	0.95	0.47

Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคาร A smart condo
Equipment	ACB	Equipment Name:	MAIN ACB
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000742.IS2

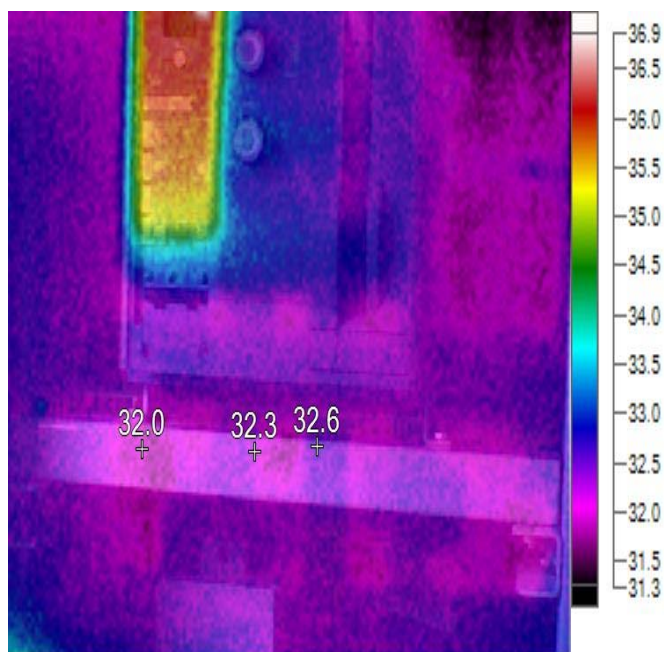
1/16/2024 3:41:44 PM

### Main Image Markers

Name	Temperature	Emissivity
P0	33.1°C	0.95
P1	32.9°C	0.95
P2	32.5°C	0.95

Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคารA smart condo
Equipment	ACB	Equipment Name:	MAIN ACB
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000743.IS2

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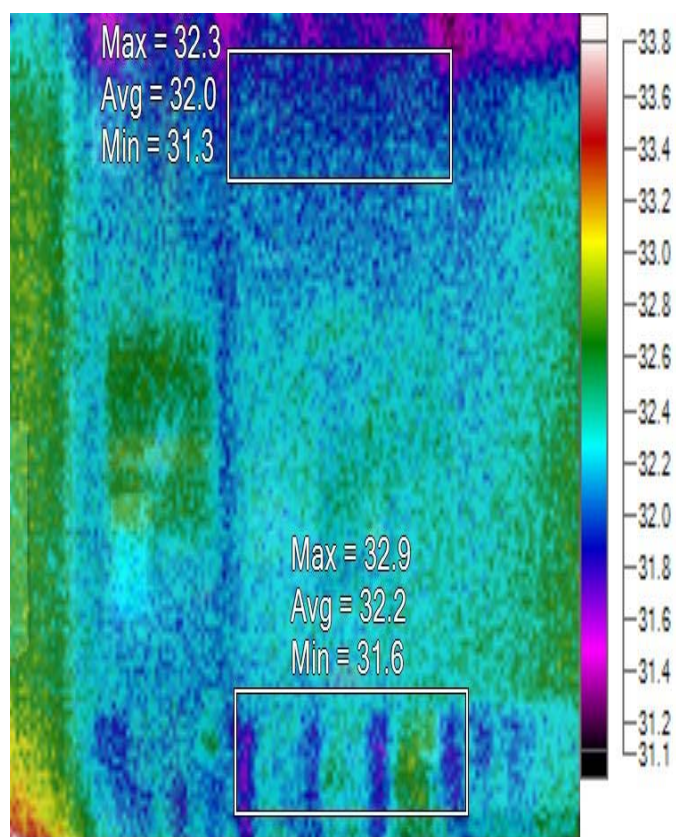
#### Main Image Markers

Name	Temperature	Emissivity
P0	32.0°C	0.95
P1	32.3°C	0.95
P2	32.6°C	0.95



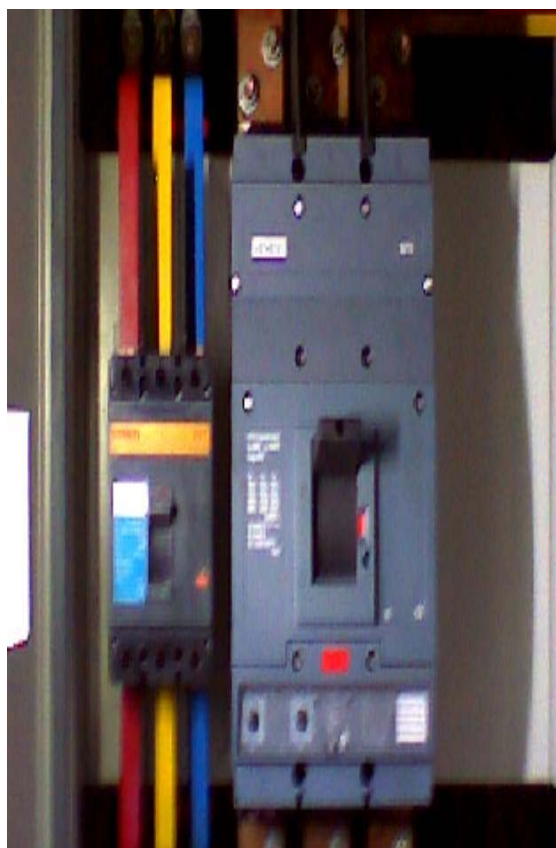
Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคารA smart condo
Equipment	MCCB	Equipment Name:	MAIN CAP
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000744.IS2

1/16/2024 3:42:03 PM

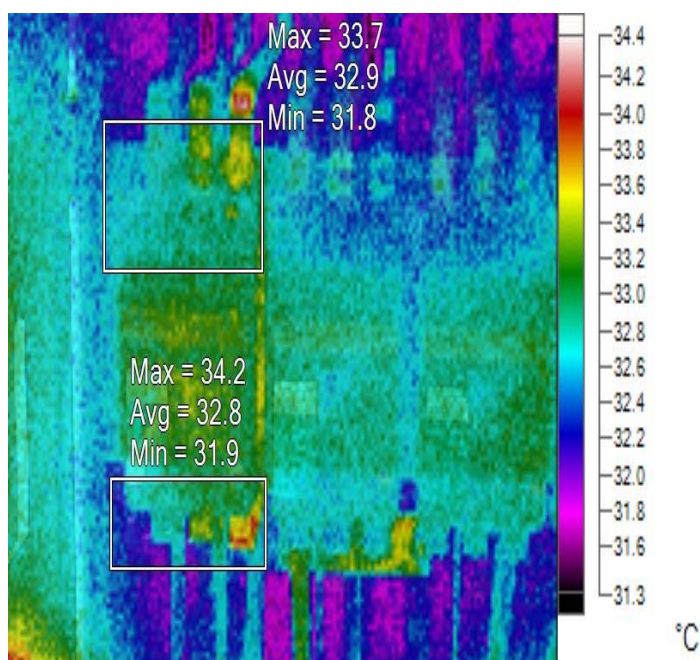


### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	32.0°C	31.3°C	32.3°C	0.95	0.13
A1	32.2°C	31.6°C	32.9°C	0.95	0.23

Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคารA smart condo
Equipment	MCCB	Equipment Name:	PP-1,PP-2
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000745.IS2

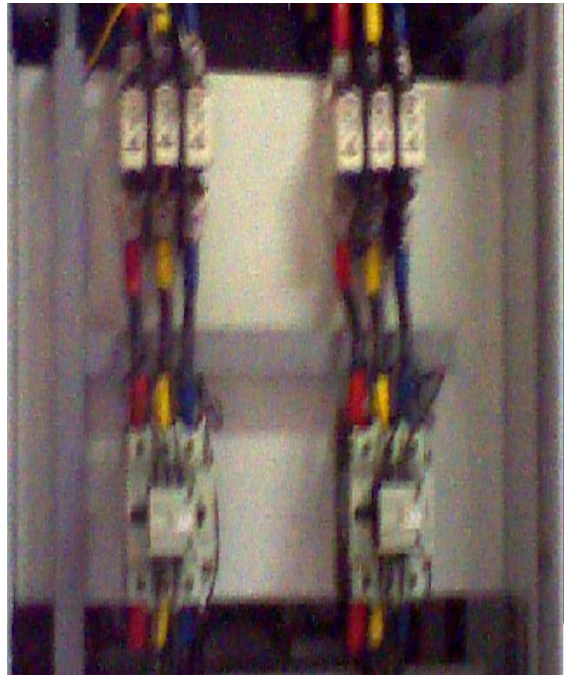
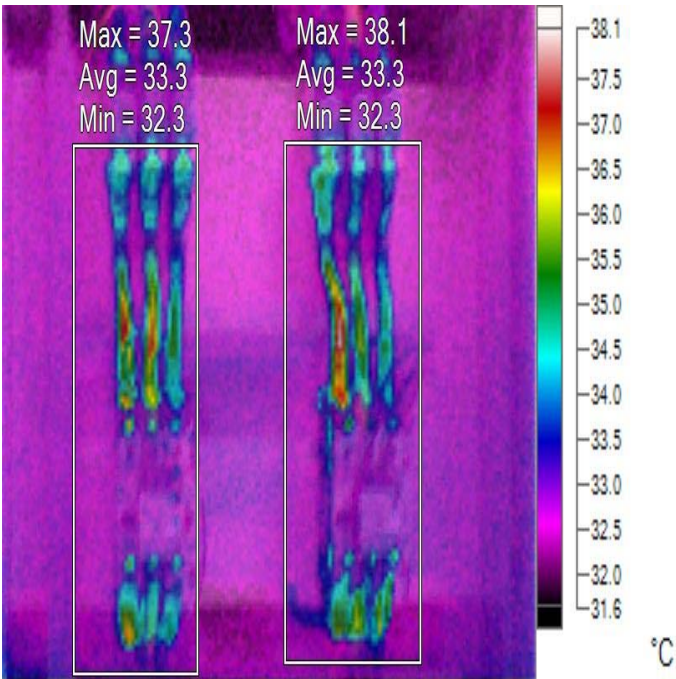
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### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	32.9°C	31.8°C	33.7°C	0.95	0.27
A1	32.8°C	31.9°C	34.2°C	0.95	0.44

Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคารA smart condo
Equipment	CAPBANK	Equipment Name:	Step1,2
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000746.IS2

1/16/2024 3:43:20 PM

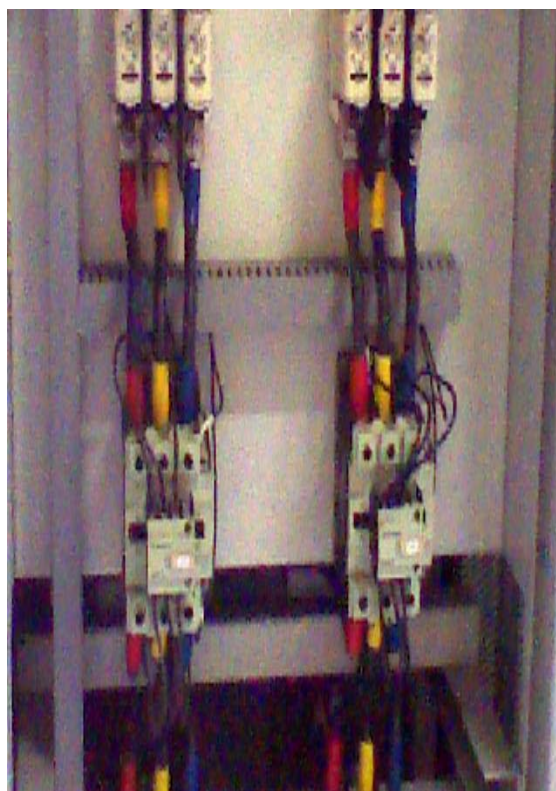
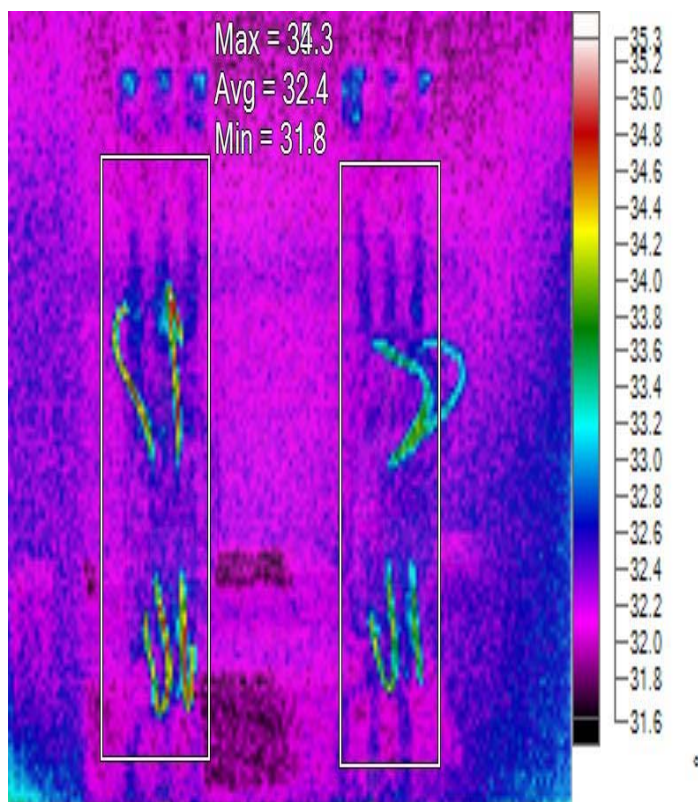
#### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	33.3°C	32.3°C	37.3°C	0.95	0.85
A1	33.3°C	32.3°C	38.1°C	0.95	0.85



Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคาร A smart condo
Equipment	CAPBANK	Equipment Name:	Step 3,4
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000747.IS2

1/16/2024 3:43:27 PM

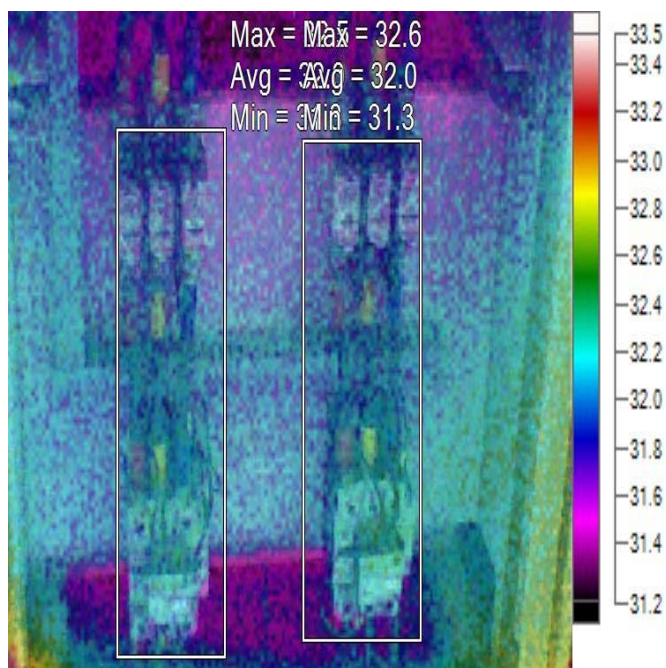
### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	32.4°C	31.6°C	35.3°C	0.95	0.52
A1	32.4°C	31.8°C	34.3°C	0.95	0.35



Inspected By: ATIWAN B.

Inspection Date:	16/1/2024	Location	อาคาร A smart condo
Equipment	CAPBANK	Equipment Name:	Step5,6
Emissivity:	0.95	Reflected Temperature:	30.0 °C
Camera Manufacturer	Fluke Thermography	Camera:	Tis75-14040173



IR000748.IS2

1/16/2024 3:43:32 PM

### Main Image Markers

Name	Avg	Min	Max	Emissivity	St. Dev.
A0	32.0°C	31.3°C	32.5°C	0.95	0.17
A1	32.0°C	31.3°C	32.6°C	0.95	0.17



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Transformer (OIL)  
**PLANT** : อาคาร A **JOB REFERENCE NO.** :

## Test Equipments

1. Insulation Tester : MEGGER 2. Turn ratio tester : RAYTECH 3. Winding Tester : METREL  
Type/Model : BM5200 Type/Model : MARK III Type/Model : MI3280

**Cubicle No. :** TR **Feeder Name :** TR อาคาร A

### 1. Data and description

Mfg : QTC Rated voltage HV/LV : 24/0.416 kV  
Type : Oil Type Seal type Rated current HV/LV : 24.06/1387.86 A.  
Serial no. : 52311036 Rated frequency : 50 Hz.  
Rated KVA : 1000 Total weight : 2900 Kg  
Vector Group : DYN11 Country Mfg : THAILAND  
Service tap : 1 Year : 2009

### 2. General condition checked

- Body and seal check ☒ Normal ☐ Abnormal  
- Oil level &leakage check ☒ Normal ☐ Abnormal  
- Drier filter condition ☒ Normal ☐ Abnormal  
- Bushing and termination ☐ Normal ☒ Abnormal Comment 1  
- Grounding connection check ☒ Normal ☐ Abnormal  
- Buchholz / Temp function check ☐ Normal ☐ Abnormal n/a  
- Cooling system condition and function check ☐ Normal ☐ Abnormal n/a  
- Bushing and insulator post cleaning ☒ Normal ☐ Abnormal

### 3. Individual test

#### 3.1 Insulation resistance measurement

Test Connection		Test Voltage	Insulation Resistance (GΩ)			Result
Energize	Ground	VDC	1 min	10 min	PI	
H.V.	L.V. + G.	2,500	2.4	3.4	1.400	PASS
L.V.	H.V. + G.	1,000	2.3	-	-	PASS
H.V. + L.V.	G.	2,500	2.1	-	-	PASS

#### 3.2 Dielectric Strength of oil Test

Location	Standard Test	Gap mm.	Temp. oC	STD. DEV.	Breakdown voltage ( kV )						
					1	2	3	4	5	6	AVG.
Main tank	IEC60156-95	2.5	25	7.34	75.8	59.6	68.3	63.1	78.8	63.7	68.8

Oil Tester Type : Hiprotronic 0-75kV

Model : OC60d



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Transformer (OIL)  
**PLANT** : อาคาร A **JOB REFERENCE NO.** :

## 3.3 Transformer Turn Ratio Test

Tap Position	Name Plate Ratio			Measurement Ratio			Result
	H.V. Side	L.V. Side	Ratio	Phase	Ratio	% Error	
1	24,000	416	99.9230	H1-H0, X1-X3	99.9900	0.06%	pass
				H2-H0, X2-X1	99.9900	0.06%	pass
				H3-H0, X3-X2	99.9800	0.05%	pass

## 4. Test result of individual test

- Dielectric strength test ☒ Normal ☐ Abnormal
- Insulation resistance test ☒ Normal ☐ Abnormal
- Winding resistance test ☐ Normal ☐ Abnormal
- Transformer ratio test ☒ Normal ☐ Abnormal
- Function test ☐ Normal ☐ Abnormal

### Setting

Winding temperature [°C]	Actual	Maximum	Fan 1	Fan 2	Alarm	Trip
	-	-	-	-	-	-

- Winding temperature start fan ☐ Normal ☐ Abnormal
- Winding temperature alarm ☐ Normal ☐ Abnormal
- Winding temperature trip ☐ Normal ☐ Abnormal

## 5. Comment

- 1.มีรอยแฟลสที่Bushing แรงสูง เฟส A,B
- 2.สายมีรอยไหม้ที่ เฟส A,B

Signature (Tester)

ATIWAN

Date : 15/1/2567

Signature (Approved)

Date :

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : AIR CIRCUIT BREAKER (ACB)  
**PLANT** : อาคาร A **JOB REFERENCE NO.** :

## Test Equipments

1. Insulation Tester : MEGGER  
Type/Model : BM21  
2. Micro Ohm : AEMC  
Type/Model : 6240  
3. Full Test kit : SIEMENS  
Type/Model : Test kit

**Cubicle No. :** MDB **Feeder Name :** Main ACB  
Manufacture : SIEMENS Rated Voltage (Un) : 500 V Motor Drive : -  
Type/Model : 3WT8161-6AA00-0AA2 Rated Current (In) : 1600 A Opening Coil : -  
Racking type : FIX Interrupting Current (Icu) : 66KA 1s Closing Coil : -  
Serial No. : 7200291117010 Frquency / Pole : 50 Hz/3 POLE Under Voltage : -

## 1. Visual Mechanical and Electrical Inspection

- Body and seal (Undamaged) condition	<input type="checkbox"/> Normal	<input checked="" type="checkbox"/> See comment	<input type="checkbox"/> N/A
- Gripping contact condition	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input type="checkbox"/> N/A
- Arc Chute Chamber condition	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input type="checkbox"/> N/A
- Motor drive & gear condition	<input type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input checked="" type="checkbox"/> N/A
- Racking/Rail mechanism condition	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input type="checkbox"/> N/A
- L.V. auxiliaries plug condition	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input type="checkbox"/> N/A
- Wiring and Connection of control cable	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input type="checkbox"/> N/A
- Grounding & Mounting condition	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input type="checkbox"/> N/A

## Comment

## 2. Inspection before Individual Test

- Battery voltage measurement .....Vdc	<input type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input checked="" type="checkbox"/> N/A
- Function test for breaker	<input checked="" type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input type="checkbox"/> N/A
- Function test for motor charging spring	<input type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input checked="" type="checkbox"/> N/A
- Function test for under voltage release	<input type="checkbox"/> Normal	<input type="checkbox"/> See comment	<input checked="" type="checkbox"/> N/A

## 3. Contact Resistance Test

Status	Test Current (ADC)	Phase	Resistance ( $\mu\Omega$ )	Calculate Watt loss		Result
				at 100A (W)	Average (W)	
CLOSED	100	L1	43.0	0.430	0.500	<input checked="" type="checkbox"/> PASS
		L2	48.0	0.480		<input type="checkbox"/> NOT PASS
		L3	59.0	0.590		

## 4. Insulation Resistance Test

Status	Test Connection		Test Voltage (VDC)	Phase	Resistance (M $\Omega$ )	Result
	Energized	Ground				
CLOSE	Top	Ground	1000	L1-G	-	<input checked="" type="checkbox"/> PASS
				L2-G	-	<input type="checkbox"/> NOT PASS
				L3-G	-	
OPEN	Top	Bottom	1000	L1-L1	-	<input type="checkbox"/> PASS
				L2-L2	-	<input type="checkbox"/> NOT PASS
				L3-L3	-	





# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

<b>CUSTOMER</b>	:	นิติบุคคลอาคารสมารถคอนโด พระราม 2	<b>EQUIPMENTS NAME</b>	:	AIR CIRCUIT BREAKER (ACB)
<b>PLANT</b>	:	อาคาร A	<b>JOB REFERENCE NO.</b>	:	

## 5. Protective Relay

Manufacture	:	SIEMENS	Rated Primary Current (In)	:	1,600 A
Relay type	:	ETU37WT	Rated Operating Current (Io)	:	1,600.0
Serial No.	:	SZVXOOO5002925	Year/Installed	:	-

### Relay setting type

Function	Characteristic curve	Primary current
Long time ( L ) $I_1$ 1 * In	t 1 : 10 S@6Ir	9,600 A.
Short circuit time ( S ) $I_2$ 6 * In	t 2 : 0.3 s $I_2$ ton <input type="checkbox"/> $I = 8 I_n$ <input type="checkbox"/> $I > I_2$	14,400 A.
Instantaneous time ( I ) $I_3$ $\geq 20$ * In	t 4 : 0.3 s $I_2$ ton	50,000 A.
Ground ( G ) $I_4$ OFF * In		- A.

#### 5.1 Overload with inverse long time delay ,I1

Description	Should be	As found			Result
		Phase A.	Phase B.	Phase C.	
Operating time at 3 time	10.00 s.	9.044 s.	9.044 s.	9.044 s.	<input type="checkbox"/> PASS <input type="checkbox"/> NOT PASS

#### 5.2 Shorty-time short circuit ,I2

Description	Should be	As found			Result
		Phase A.	Phase B.	Phase C.	
Operating time at 1.5 time	0.3 s.	0.346 s.	0.346 s.	0.346 s.	<input type="checkbox"/> PASS <input type="checkbox"/> NOT PASS

#### 5.3 Instantaneous short circuit ,I3

Description	Should be	As found			Result
		Phase A.	Phase B.	Phase C.	
Operating time at 1.5 time	<0.05 s.	0.033 s.	0.033 s.	0.033 s.	<input type="checkbox"/> PASS <input type="checkbox"/> NOT PASS

#### 5.4 Earth fault ,I4

Description	Should be	As found	Result
Pickup current	OFF A.	450 A.	<input type="checkbox"/> PASS
Operating time at 1.5 time	0.3 s.	- s.	<input type="checkbox"/> NOT PASS

## 6. Comment

1. Cover Setting ไม่ดี

2 Status charge sping พัก

File name: ACB\_/ACB\_PR111

Report page: 2



## AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
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**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2      **EQUIPMENTS NAME** : AIR CIRCUIT BREAKER (ACB)

**PLANT** : อาคาร A      **JOB REFERENCE NO.** :

---

3 Function Ground ปิดใช้งาน

---

Signature (Tester)

Signature (Approved)

Signature (Customer)

ATIWAN

Date : 15/1/2567

Date :

Date :

---



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai, saimai,  
Bangkok 10220, Thailand, Tel.063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : LV CAPACITOR BANK  
**PLANT** : อาคาร A **JOB REFERENCE NO.** :

## Test Equipments

1. Insulation Tester : MEGGER  
Type/Model : MIT420/2  
2. RLC Tester : VOLTH  
Type/Model : S-LCR1  
3. Resistance Tester : SANWA  
Type/Model : YX360TRF

**Cubicle No. :** CAP BANK **Feeder Name :** อาคาร A

## 1. Name Plate Data

Manufacture : DUCATI Voltage : 400 VAC Fluid type : -  
Type/Model : 416.37.0108 Frequency : 50 Hz Ins.n level : -  
Serial No. : Reactive : 25 x 2 KVAR Temp. cat. : - 25/D  
Year : 2008 Phase : 3 Ph. Connected : D  
Standard : IEC 60831 1-2 Capacitance : 3x166 uF R-Discharge : -

## 2. Automatic Power Factor Controller (APFC)

Manufacture : JANITZA CT "s ratio : 1600/5 Voltage : 400  
Type/Model : PROPHI6R Setting C/K : 0.081 PF Setting : 0.96  
Serial No. : 8604/0697 Time setting : 40 Other : 90 °

## 3. General Visual Insection Check

☒ Capacitor bank and Support cubicle :  
☒ Power factor control relay :  
☒ Selector switch and push button :  
☒ Status lamp ON / OFF :  
☒ Main Circuit Breaker ☒ Yes 1000 A ☐ No. :  
☐ Molded Case Circuit breaker : N/A  
☒ Control cable, Termination :  
☒ Power Cable size 50 mm<sup>2</sup> :  
☒ Fuse base :  
☒ Fuse link condition :  
☒ Magnetic Contactor Condition :  
☒ Magnetic contactor's surface condition :  
☒ Capacitor unit condition :  
☐ Reactor winding insulator condition : N/A  
☐ Reactor iron core condition : N/A  
☐ Reactor cable connection condition : N/A  
☒ Grounding connection condition :  
☐ Cooling equipment condition : N/A

## 5. Check Capacitance and Discharge resistance of Capacitor

Step	Serial No.	Phase	Frequency (Hz)	Resistance (kΩ)	Capacitance (μF)		% Error	Result	Insulation test (MΩ)
					Measurement	Calculation			
1		A-B	50	100.00	502.00	497.61	-0.88	Pass	5,100
		B-C	50	100.00	503.00	497.61	-1.08	Pass	
		C-A	50	100.00	502.00	497.61	-0.88	Pass	







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**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP1ชั้น 1

## 1. Panel board unit inspection record

Main breaker rated current

200

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker No.	Breaker No.	Circuit rated current (A)	Status
N	63	1	2	63	N
		3	4		
		5	6		
N	50	7	8	50	N
		9	10		
		11	12		
N	25	13	14	20	N
N	25	15	16	20	N
N	25	17	18	20	N
N	20	19	20		
		21	22		
		23	24		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)  
**PLANT** : อาคาร A

Feeder/Panel name : LP 1 ชั้น 1

## 1. Panel board unit inspection record

Main breaker rated current

63

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and  
Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker r No.	Breaker No.	Circuit rated current (A)	Status
N	16	1	2	16	N
N	16	3	4	16	N
N	16	5	6	16	N
N	16	7	8	16	N
N	16	9	10	16	N
N	16	11	12	16	N
N	16	13	14	16	N
N	16	15	16	16	N
N	16	17	18	16	N
N	16	19	20	16	N
N	16	21	22	16	N
N	16	23	24	16	N
N	16	25	26	16	N
N	16	27	28	16	N
N	16	29	30	16	N
		31	32	32	N
		33	34		
		35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP-2 ชั้น 2

## 1. Panel board unit inspection record

Main breaker rated current

250

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker r No.	Breaker No.	Circuit rated current (A)	Status
N	40	1	2	40	N
N	40	3	4	40	N
N	40	5	6	40	N
N	40	7	8	40	N
N	40	9	10	40	N
N	40	11	12	40	N
N	40	13	14	40	N
N	40	15	16	40	N
N	40	17	18	40	N
N	40	19	20	40	N
N	40	21	22	40	N
N	40	23	24	40	N
N	40	25	26	40	OFF
N	40	27	28	40	N
N	40	29	30	40	N
N	40	31	32	16	N
N	40	33	34		
N	16	35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP-3 ชั้น 3

## 1. Panel board unit inspection record

Main breaker rated current

250

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker r No.	Breaker No.	Circuit rated current (A)	Status
N	40	1	2	40	N
N	40	3	4	40	N
N	40	5	6	40	N
N	40	7	8	40	OFF
N	40	9	10	40	N
N	40	11	12	40	N
N	40	13	14	40	N
N	40	15	16	40	N
N	40	17	18	40	N
N	40	19	20	40	N
N	40	21	22	40	N
N	40	23	24	40	N
N	40	25	26	40	N
N	40	27	28	40	N
N	40	29	30	16	N
N	40	31	32	16	N
N	40	33	34		
		35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :





# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP-4 ชั้น 4

## 1. Panel board unit inspection record

Main breaker rated current

250

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker No.	Breaker No.	Circuit rated current (A)	Status
N	40	1	2	40	N
N	40	3	4	40	N
N	40	5	6	40	N
N	40	7	8	40	N
N	40	9	10	40	N
N	40	11	12	40	N
N	40	13	14	40	N
N	40	15	16	40	N
N	40	17	18	40	N
N	40	19	20	40	N
N	40	21	22	40	OFF
N	40	23	24	40	N
N	40	25	26	40	N
N	40	27	28	40	N
N	40	29	30	16	N
N	40	31	32		
N	40	33	34		
N	40	35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP-5 ชั้น 5

## 1. Panel board unit inspection record

Main breaker rated current

250

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker No.	Breaker No.	Circuit rated current (A)	Status
N	40	1	2	40	N
N	40	3	4	40	N
N	40	5	6	40	N
N	40	7	8	40	N
N	40	9	10	40	N
N	40	11	12	40	N
N	40	13	14	40	N
N	40	15	16	40	OFF
N	40	17	18	40	N
N	40	19	20	40	N
N	40	21	22	40	N
N	40	23	24	40	N
N	40	25	26	40	N
N	40	27	28	40	N
N	40	29	30	16	N
N	40	31	32		
N	40	33	34		
N	40	35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP-6 ชั้น 6

## 1. Panel board unit inspection record

Main breaker rated current

250

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker No.	Breaker No.	Circuit rated current (A)	Status
N	40	1	2	40	N
N	40	3	4	40	N
N	40	5	6	40	N
N	40	7	8	40	N
N	40	9	10	40	N
N	40	11	12	40	OFF
N	40	13	14	40	N
N	40	15	16	40	OFF
N	40	17	18	40	N
N	40	19	20	40	N
N	40	21	22	40	N
OFF	40	23	24	40	N
N	40	25	26	40	N
N	40	27	28	40	N
N	40	29	30	16	N
N	40	31	32		
N	40	33	34		
N	40	35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP-7 ชั้น 7

## 1. Panel board unit inspection record

Main breaker rated current

250

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker r No.	Breaker No.	Circuit rated current (A)	Status
N	40	1	2	40	N
N	40	3	4	40	N
N	40	5	6	40	N
N	40	7	8	40	N
N	40	9	10	40	N
N	40	11	12	40	N
N	40	13	14	40	N
N	40	15	16	40	N
N	40	17	18	40	N
N	40	19	20	40	N
N	40	21	22	40	N
N	40	23	24	40	N
N	40	25	26	40	N
N	40	27	28	40	N
OFF	40	29	30	16	N
N	40	31	32		
N	40	33	34		
N	40	35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :





# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสมารถคอนโด พระราม 2 **EQUIPMENTS NAME** : Distribution Borad(LP)

**PLANT** : อาคาร A

Feeder/Panel name : PP-8 ชั้น 8

## 1. Panel board unit inspection record

Main breaker rated current

250

A

Scope of work

1.1 Visual Inspection check

1.2 Clean cubicle and Equipment

1.3 Tightening connection check

Note: System live bus when visual and

Inspection check

Code of status :

N : Normal

C1 : See comment number 1

C2 : See comment number 2

Cx : See comment number x

Status	Circuit rated current (A)	Breaker r No.	Breaker No.	Circuit rated current (A)	Status
N	40	1	2	40	N
OFF	40	3	4	40	OFF
N	40	5	6	40	N
N	40	7	8	40	N
N	40	9	10	40	N
N	40	11	12	40	OFF
OFF	40	13	14	40	N
N	40	15	16	40	N
N	40	17	18	40	N
N	40	19	20	40	N
N	40	21	22	40	OFF
N	40	23	24	40	N
N	40	25	26	40	N
N	40	27	28	40	N
N	40	29	30	16	N
N	40	31	32		
N	40	33	34		
N	40	35	36		
		37	38		
		39	40		
		41	42		

## 2. Comment

Signature (Tester)

Atiwan B.

Signature (Approved)

Date :

Date : January 15, 2024

Signature (Customer)

Date :



# AKS engineering power Co., Ltd.

62/93chonchop Villages, soi saimai 48 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758

**CUSTOMER** : นิติบุคคลอาคารสภารวม 2 **EQUIPMENTS NAME** : Grounding Resistance Test  
**PLANT** : อาคาร A **JOB REFERENCE NO.** :

## Test Equipments

- Grounding Resistance Test Type : 1623 Identity : FLUKE

**Locations Name** :

### 1. Method of Test and Measured values

- ☐ 1. 3/4-Pole Fall of Potential (Result : Resistance (RE) ( $\Omega$ ))  
☐ 2. Selective Earth Measurement (One Clamp) (Result : RE1 = Current draw into grounding system ( $\Omega$ )  
RE2 = Current draw into system or equipment ( $\Omega$ ) )  
☒ 3. Ground Loop Measurement (Two Clamp) (Result : Resistance-Loop ( $\Omega$ ))

#### Setting value for 1 & 2

Voltage ☐ 20 V ☒ 48 V  
Frequency ☐ AFC = 111 Hz

### 2. Visual Inspection

- Ground terminal box physical condition ☒ Normal ☐ See comment ☐ N/A  
- Wiring and connection ☒ Normal ☐ See comment ☐ N/A

### 3. Grounding resistance measurement

Item	Feeder name	Resistance( $\Omega$ )	Item	Feeder name	Resistance( $\Omega$ )
1	MDB	0.16 $\Omega$	11		
2	TR	0.26 $\Omega$	12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		
			20		

Note: Acceptable value of ground resistance is not more than 5 Ohm

### 4. Comment

Signature (Tester) Signature (Approved) Signature (Customer)  
ATIWAN  
Date : 15/1/2567 Date : Date :



# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร B

Date : JANUARY 15, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758



# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร D

Date : JANUARY 15, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758





# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร E

Date : JANUARY 16, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758



# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร F

Date : JANUARY 16, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758



# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร G

Date : JANUARY 16, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758



# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร H

Date : JANUARY 16, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758





# ELECTRICAL SYSTEM PREVENTIVE MAINTENANCE REPORT

## SMART CONDO RAMA 2

อาคาร นิติ

Date : JANUARY 15, 2024

Descriptions : Preventive maintenance LV  
system

**AKS engineering power Co., Ltd.**  
51/8chonchop Villages, soi saimai 10 ,saimai,  
saimai, Bangkok 10220, Thailand, Tel. 063-6538758