

Thermal Infrared Analysis of Electrical Equipment

The Following is Obtain from CSA Z463-18 Section 7.5.2 Infrared Scanning and Thermography

Infrared scanning and thermography should be used to identify failures due to loose components, high resistance connections, or equipment operating outside the normal operating parameters.

Typical observations made using IR include

- High resistance connections
- Loose components
- Overload conditions

The Following is Obtain from ANSI/NETA MTS-2015 Section 9 Thermographic Survey

1. Visual and Mechanical Inspection

1. Inspect physical and mechanical condition.
2. Remove panel covers or view the equipment through viewing ports designed to transmit applicable signals being measured.

2. Thermographic Survey Report

Provide a report which includes the following:

1. Description of equipment to be tested.
2. Discrepancies.
3. Temperature difference between the area of concern and the reference area.
4. Probable cause of temperature difference.
5. Areas inspected. Identify inaccessible and/or unobservable areas and/or equipment.
6. Identify load conditions at time of inspection.
7. Provide photographs and/or thermograms of the deficient area.
8. Provide recommended action for repair.

3. Test Parameters

1. Inspect distribution systems with imaging equipment capable of detecting a minimum temperature difference of 1° C at 30° C.
2. Equipment shall detect emitted radiation and convert detected radiation to visual signal.
3. Thermographic surveys should be performed during periods of maximum possible loading. Refer to ANSI/NFPA 70B 2013 edition, Section 11.17

4. Test Results

Suggested actions based on temperature rise as per NETA MTS.

For information about frequencies of inspections and types of equipment, refer to Power Precision document titled Electrical Equipment Maintenance Frequencies – Based on NETA MTS-2015