ELION TECHNOLOGIES & CONSULTING PVT. LTD.

Infrared Thermography Testing Procedure

Technical methodology for industrial and electrical infrared inspections

Technical resource | Version 1.0 | November 2026

Web: https://elion.co.in/infrared-testing-services/

Technical notice: This document is a guidance/template resource. It is not a certificate of inspection, test result or statement of conformity.

1. Purpose

To define a consistent approach for non-contact infrared thermal inspection of applicable electrical equipment and interpretation of thermal anomalies. This generic procedure shall be tailored to the customer scope, plant hazards and applicable standards.

2. Applicable scope

Accessible external surfaces of LT panels, switchgear, MCC/PCC, transformer terminations, cable joints, motor feeders and related electrical assets. Other thermal applications require separately defined methods.

3. Responsibilities

Role	Responsibility
Site representative	Access permissions, operation/loading arrangements, electrical safety permits.
Qualified thermography inspector	Camera setup, safe image capture, measurement notes and preliminary interpretation.
Technical reviewer	Assess findings, context, priority and report completeness.
Maintenance team	Perform controlled verification, corrective work and post-repair validation.

4. Safety prerequisites

Conduct a task-specific risk assessment. Apply the facility electrical safety rules, permit-to-work process, PPE and approach boundaries. Only authorised personnel may open electrical enclosures or perform live

work. Prefer installed infrared viewing windows where suitable. Never compromise protective guarding to obtain images.

5. Equipment and calibration

Use an appropriate radiometric infrared camera, supported by equipment records and calibration controls. Record camera make/model/serial, lens, measurement range, emissivity, reflected temperature assumptions, ambient, distance and thermal resolution limitations where applicable.

6. Step-by-step procedure

Step	Activity	Expected record
01	Confirm scope, asset list and access plan.	Asset register and site approvals.
02	Assess hazards and verify operating conditions.	Permits, load/current information.
03	Check camera condition and measurement settings.	Instrument and settings log.
04	Scan accessible assets systematically from safe positions.	Radiometric files and location mapping.
05	Capture visible and thermal images; check reflections.	Paired evidence and spot markers.
06	Compare like-for-like components under similar load.	Temperature comparison and context.
07	Review anomalies with maintenance/site personnel.	Finding narrative and possible causes.
08	Assign risk priority using equipment consequence and technical evidence.	Priority and corrective-action plan.
09	Issue reviewed report and plan verification.	Approved report and closure plan.

7. Interpretation controls

Surface temperature is influenced by emissivity, load, convection, reflectivity, viewing angle and environment. Do not classify severity solely using a generic temperature delta. Compare similar electrical components at similar loads, review manufacturer ratings and record limitations. Identify possible failure modes as hypotheses pending verification.

8. Reporting requirements

Include client/site, scope, inspected asset IDs, inspection and load conditions, instrument details, visible and thermal images, actual readings, observations, priority rationale, maintenance recommendations and limitations. Ensure images are linked to locations. A reviewer checks findings before release.

9. Corrective action and close-out

The maintenance owner should assess each recommendation, choose safe interventions, assign a due date, document corrective work and attach verification evidence. A repeat thermogram under comparable conditions is preferable for closure of significant anomalies.

10. Quality and revision control

Document control	Value
Document	Generic infrared thermography inspection procedure
Revision	1.0 / November 2026
Applicability	Template; project-specific approval required
Related records	Asset list, site permit, thermal files, finding register, close-out log

11. Reference standards

ISO 18434-1:2008; ISO 18436-7; applicable electrical safety requirements and equipment manufacturer instructions. For projects referencing NFPA 70B, verify current edition and contractual applicability before claiming compliance.

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