



Since - 1999

**Shanthala
Power Limited**



CONDITION MONITORING OF POWER EQUIPMENTS

Trouble-free operation of the Power Equipments makes industry successful. Condition based assessment is essential to know the present working condition and to predict the future service life of Power Equipments.

Shanthala Power Limited, Hubballi, has assessed more than 1,00,000 Power Equipments of different capacity, different make and different age group in India and aboard.

We have developed customer data bank for power equipments test results, which are repeatedly tested, computed and analyzed since last 23 years.

We have a team consisting of experts, state of art test equipments, software and mobile vans to access the healthiness of power equipments at your site.

HEAD OFFICE: "Shanthala Power Limited" No. 24, Priyadarshini Colony, Gokul Road, Hubballi-580 030, Karnataka, India.

Cell No:09449867588, 08147832183,GSTIN: 29AAMCS4957P1Z7,CIN:U40109KA2008PLC047840.

E-Mail:marketing@shanthalaindia.com Website:www.shanthalaindia.com



Since - 1999

**Shanthala
Power Limited**



Condition Monitoring of Transformer	
1	Insulation Resistance (IR) Test
2	Polarization Index (PI) Test
3	DC Absorption Test
4	Capacitance & Tan Delta Test
5	Leakage Current Test
6	Step-Up Voltage Test
7	Dielectric Spectroscopic Test (DIRANA)/(IDAX)
8	DC Winding Resistance Test
9	Neutral Floating Point Test
10	Turn Ratio and Phase Angle Error Test
11	Excitation Current Test (at high Voltage)
12	Sweep Frequency Response Analysis (SFRA)
13	Magnetic Current Test
14	Magnetic Balance Test
15	Transformer oil Tests (Main Tank-Top/Bottom/OLTC) BDV,PPM,IFT,Acidity,DGA, Sludge, Resistivity, Flash Point, Tan Delta, Furan Analysis
16	Physical Condition Assessment of Transformer
	1. Cooling System
	2. Oil Leakage Assessment
	3. OLTC
	4. Earthing
	5. Paint
	6. Breather
	7. Missing/Damaged Parts
	8. Cable Assessment



Since - 1999

**Shanthala
Power Limited**



NABL
ACCREDITATION



RAJIV GANDHI
QUALITY AWARD



MSME NATIONAL
AWARD



GOLDEN PEACOCK
AWARD

I. Transformer oil tests as per IS: 1866

- 1 Color and Appearance
- 2 Break Down Voltage (BDV)
- 3 Moisture Content
- 4 Dielectric Dissipation Factor (Tan Delta)
- 5 Resistivity
- 6 Neutralization Number (Acidity)
- 7 Interfacial Tension
- 8 Sludge
- 9 Flash Point
- 10 Dissolved Gas Analysis
 - a. Methane
 - b. Ethylene
 - c. Ethane
 - d. Acetylene
 - e. Carbon Monoxide
 - f. Carbon Dioxide
 - g. Hydrogen
 - h. Total Gas Content %by Volume
- 11 Furan Analysis
- 12 Density
- 13 Kinematic Viscosity
- 14 Pour Point
- 15 Polychlorinated biphenyl's (**PCB**)
- 16 Inhibitor Content Test
- 17 Corrosive Sulfur



Since - 1999

**Shanthala
Power Limited**



II. Transformer oil Filtration and Overhauling of Transformer

A. Services

- a. Transformer oil Filtration
- b. Transformer Oil Leakage Arresting
- c. Replacement of Bushings, Valves, Gaskets, “O” Rings, Nut & Bolts Ext.
- d. Transformer Overhauling
- e. Servicing of OLTC
- f. Painting

B. Equipment Details.

- a. 10KL-Oil Filtration Machine-01
- b. 4.5 KL Oil Filtration Machine-01
- c. 3KL-Oil Filtration Machine-02
- d. 10KL Oil Storage Tanker-01
- e. Air Dryer -01
- f. Online Moisture Content -01
- g. Due Point -01

C. Supply

- a. New Transformer Oil
- b. Silica Gel
- c. Breather Set



Since - 1999

**Shanthala
Power Limited**



Condition Monitoring of Electrical Equipment

Electrical Tests on CT:

Capacitance & Tan Delta.
Insulation Resistance (IR)
DC Absorption Test.
Ratio Test
DC Winding Resistance
Knee Point

Electrical Tests on PT:

Capacitance & Tan Delta.
Insulation Resistance (IR)
DC Absorption Test.
DC Winding Resistance

Circuit Breaker Testing:

Measurement of Tripping & Closing
Time
Measurement of Contact
Resistance
Insulation Resistance (IR)

Sub-Station Lightning Arrestor:

Measurement of 3rd Harmonic
Resistive
Leakage Current.
Insulation Resistance

Earth Pit Tests:

Earth Resistance

Earth (Discharge) Rod:

AC Dielectric Strength

Earth (Rubber) Mat:

AC Proof Voltage
Leakage Current

Hand Gloves Testing:

Proof Voltage
Leakage Current

Electrical Tests on HV Cables:

Insulation Resistance (IR)
Polarization Index (PI)

DC Absorption Test
DC Winding Resistance
Leakage Current

Partial Discharge

Capacitance & Tan Delta.

Thermography (Temperature Scanning):

Electrical Equipment

Partical Discharge Testing:

Switchgears, Pannels,



Since - 1999

**Shanthala
Power Limited**



CONDITION MONITORING OF GENERATOR

A. TEST ON STATOR

1. IR & PI& DC absorption Test
2. DC Winding Resistance measurement
3. Capacitance & Tan delta Test
4. DC Leakage Current /Step Voltage Test
5. Partial discharge Test
6. RTD element check
7. Dielectric Discharge Test

B. TEST ON ROTOR

1. IR & PI
2. Digital RSO Test
3. DC winding resistance measurement

C. TEST ON EXCITER

1. Insulation Resistance
2. DC winding Resistance measurement



Since - 1999

**Shanthala
Power Limited**



CONDITION MONITORING OF MOTOR

1. On-line Test

- a. Electrical Signature Analysis
- b. Vibration Analysis
- c. Acoustic Emission Analysis

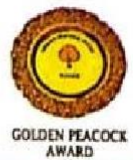
2. Off-line Test

- a. Insulation Resistance & Polarization Index
- b. Dielectric Discharge Test
- c. DC Winding Resistance
- d. Tan Delta & Capacitance Analysis
- e. PD Test



Since - 1999

Shanthala Power Limited



Sl. No.	Relay Testing
1	Over current Relay
2	Earth Fault Relay
3	Instantaneous Earth Fault Relay
4	Instantaneous Differential
5	Sensitive Earth Fault Relay
6	Neutral displacement Relay
7	Under Voltage Relay
8	Over Voltage Relay
9	Instantaneous Under Voltage Relay
10	Instantaneous Over Voltage Relay
11	Trip Circuit Supervision Relay
12	Tripping Relay
13	Master Tripping Relay
14	High Speed Tripping Relay
15	Auxillary Relay
16	Fuse Failure Relay
17	DC Failure Relay
18	Check Synchronizing Relay
19	Transformer Differential Relay
20	Buchholz Relay,
21	Over Current Relay & Earth Fault Relay
22	Motor Protection
23	Feeder Protection
24	Thermal Over Load Relay
25	Transformer/Line Differential
26	Generator Protection
27	Reverse Reactive Relay
28	Differential/Directional Relay
29	Voltage Protection Relay
30	Distance Protection Relay
31	Maximum Demand Controller Relay
32	Trip Circuit Supervision Relay
33	Definite Time Relay
34	HV No Voltage Relay
35	Vector Surge Relay
36	Protection Fuse Supervision Relay
37	Automatic Voltage Regulating Relay



Since - 1999

**Shanthala
Power Limited**



SCOPE FOR CALIBRATION OF MEASURING INSTRUMENTS

ELECTRICAL

- Multimeter
- AC/DC Clamp Meter
- Leakage Current Tester
- AC/DC Ammeter
- AC /DC Voltmeter
- Frequency Meter/ Indicator
- Watt Meter
- Power Factor Meter
- Multifunction Calibrators
- Panel Meters
- Motor Checker
- LCR Meter
- Mili ohm Meter
- Micro Ohm Meter
- Insulation tester
- Mega Ohm Meter
- Earth Resistance Tester
- Kelvin Double Bridge
- Wheatstone Bridge
- Shunts
- High voltage Tester
- Non contact Voltage Detector
- HV Probes
- HI Pot Kit
- BDV/Oil Test kit
- Phase Sequence
- Oscilloscope
- HI Pot test Kit
- Capacitance & Tan delta Kit
- Capacitance Meter
- Inductance Meter
- Welding Machine

MECHANICAL

- Pressure gauge
- Vacuum Gauge
- Pressure indicator
- Pressure Switches
- Pressure Calibrator
- Dead weight Tester
- Torque wrench
- Viscosity cup
- Venire Caliper
- Micrometer
- Height Gauge
- Depth Gauge
- Bore Gauge
- Screw Gauge
- Surface Plate
- Thread Gauge
- Thickness Meter
- Projection Gauge

THERMAL

- Temperature indicator
- Thermometer (all types)
- Thermocouple
- Temperature gauge
- Temperature controller
- Temperature Switches
- Temperature Calibrators
- RTD Sensor
- Oil Temp Gauge (OTI)
- Winding Temp Gauge (WTI)
- Hot air oven
- Muffle Furnace
- Infrared Thermometers
- Thermal Imager
- Camera
- Temperature Switches



Since - 1999

**Shanthala
Power Limited**



SCOPE FOR CALIBRATION OF MEASURING INSTRUMENTS

ANALYTICAL

- PH Meter
- Conductivity Meter
- Pipette
- Burette
- Volumetric Flask
- Weighing Machine
- Weighing Buts
- Measuring Tape
- Stainless Scale
- Winding Temp Gauge (WTI)
- Hot air oven
- Muffle Furnace
- Infrared Thermometers
- Thermal Imager
- Camera
- Temperature
- Switches

COMMUNICATION DEVICE

- Frequency Counter
- Radio Communication Test Set
- Nav Analyzer
- Portable ILS Receiver

OTHERS

- Lux Meter
- Sound Level Meter
- Anemometer
- TuTurns Ratio Meter
- Hand Gloves
- Due Point meter
- Moisture Meter
- Vibration Meter
- Gas Detector
- Timers/Stop Watch
- RCD Tester
- CT/PT
- Energy Meters (Offline/Online)
- Relays
- Primary/Secondary
- Injection Kit
- Tacho Meters