



ON LINE PD TEST – ANTENNA METHOD

IDENTIFIABLE FAILURE MODES

Partial discharge is seen as a symptom of a failure mode or modes in HV machines. Some of the failure modes that may be identified by on Line PD testing and or trending are –

- Thermal Ageing / Deterioration / Load Cycling
- Delamination / Inadequate Impregnation or Dipping
- Loose Stator Coils
- Semi-conductive Coating Failure
- Scarf Joint Failure
- Electrical Tracking /Winding Contamination
- Inadequate Endwinding Spacing

DESCRIPTION

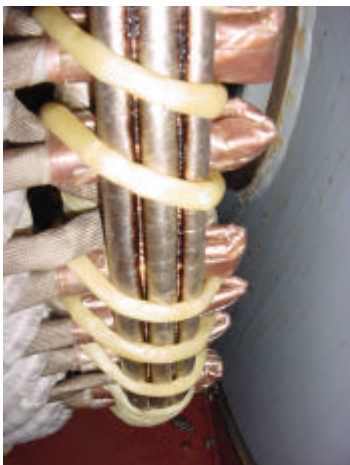
Early detection and trending of the relationship of the discharge activity to the average entire winding PD levels provides the basis for the analysis of measurements against per determined levels to determine if further testing is required.

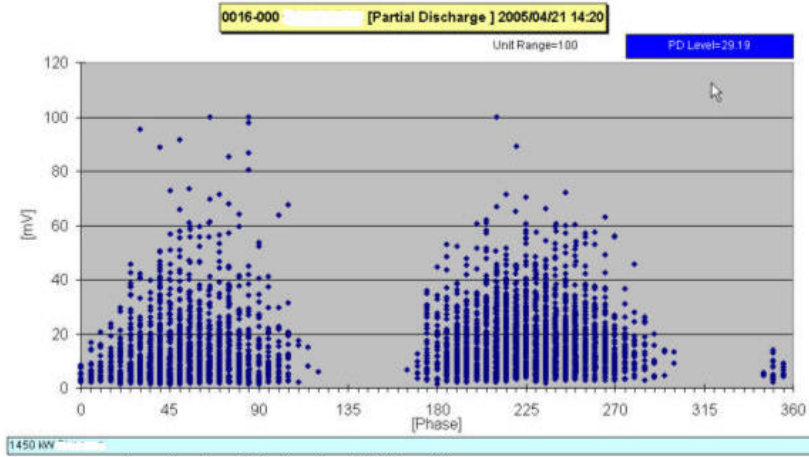
ANALYSIS APPLICATION

The method utilized for the acquisition of trend data is the antennae method. The spare RTD's fitted to the phase windings are utilized and are bought out to a remote monitoring point for the collection of the data. The data is analysed, trended and graphically displayed by the analyser.

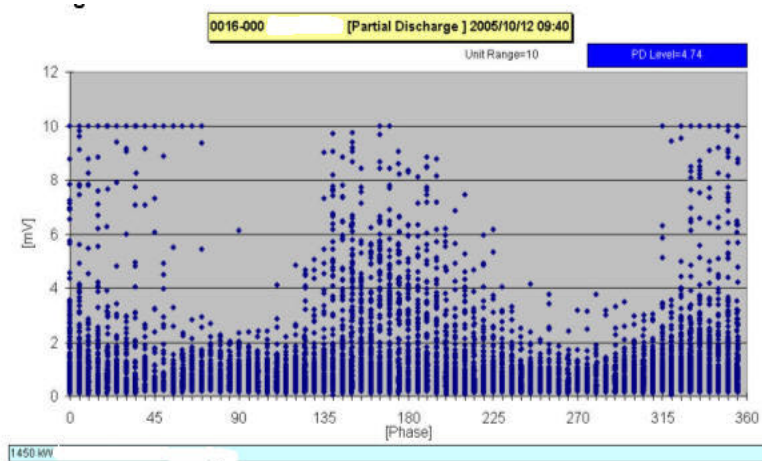
APPLICABLE STANDARD / ACCEPTANCE CRITERIA

The referenced standard for Off Line PD tests is IEEE 1434-2000.





An 11kV 1450 kW motor had partial discharge identified during a visual inspection of the motor windings.



A PD reading was taken on the motor windings utilizing the antennae method prior to removal for overhaul and repair.

Another PD reading was taken using the antennae method after the repairs and overhaul with a significant decrease in PD activity being noted.

The readings taken are trended over time with any continuous upward trend indicative of increased PD activity that should be further investigated.

