

The scope

The On-Line condition assessment technologies with large bandwidth and memory, is capable of acquiring the entire pulse shape of a large number of partial discharge signals, allowing deep partial discharge (PD) analysis to be performed.

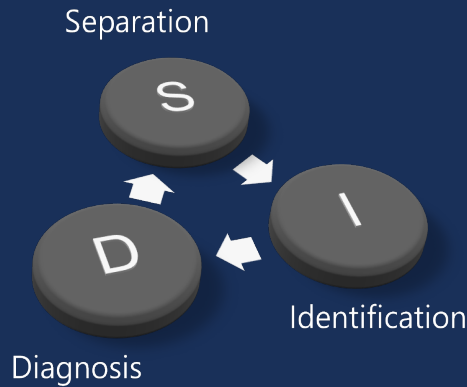
The acquisition units are provided with ultra-wide bandwidth acquisition systems, which collects not only PD pulse peak and phase (as it is done by the digital instrumentation commonly available), but also the PD pulse waveforms.

Key Challenges

Separation of PD signals from noise signals

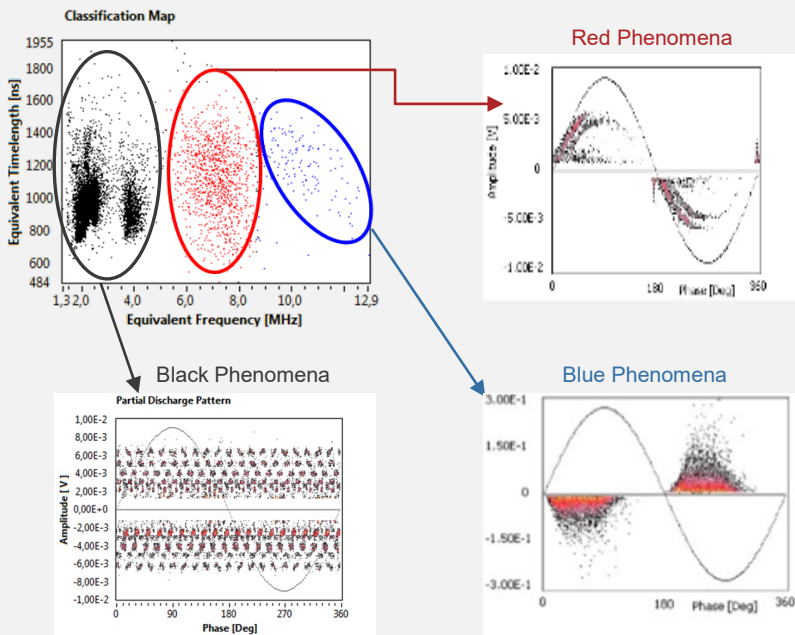
Identification of the type of PD signals

Diagnosis of the risk of the defects



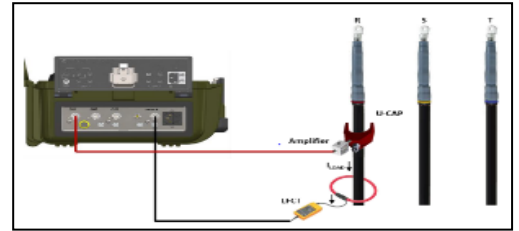
In the below Time Frequency Clarification Map is the separation of different discharge activities

- Black phenomena – Noise and interference signals
- Red phenomena - Internal (Insulation PD)
- Blue phenomena – Surface (Tracking PD)

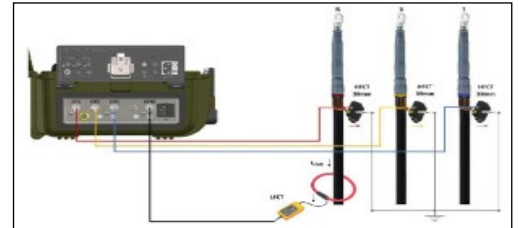


Process actions

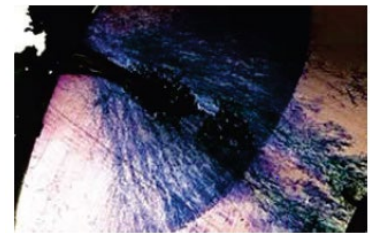
Special U-Cap sensors can be used on the outer insulation of the cable during the data acquisition process.



HFCT sensors should be used if the termination earth straps are available. The HFCT sensors are more sensitive and permits assessments of long run cables.



These internal discharges were caused by voids or cavities in the insulation system. Internal discharges is the most dangerous defect in the organic insulation system. The below photograph shows electrical treeing (black) going into water-tree blue traces.



Surface discharges are detected on the external surface of a component, such as the surface of an insulator, busbar, surge arrester or terminations

