ABSTRACT:

Surface discharge is a common phenomenon that normally occurs on the insulator surface under wet contamination condition. The generation of small sparks from the surface discharge would develop many types of signals. In this work an acoustic method is used to detect and capture the signals of surface discharges. The tests were carried out on cleaned and polluted glass insulators by using surface tracking and erosion test procedure of IEC 587. Three conditions of contamination levels were considered, which are light, medium and heavy based on ESDD levels. A laboratory experiment was done by making the models of these discharges. The test equipment including antennas as a means of detection and digital processing techniques for signal analysis were used. Wavelet signal processing was used to recover the surface discharge acoustic signal by eliminating the noises of many natures. Experimental results shows that the actual signals of surface discharge are related to the levels of insulator contamination.