Early Detection of Weak Points in MEEC Distribution System

M. Abdel-Salam, S Abdel-Sattar

Abstract:

This paper is aimed at detecting the weak points in the distribution system of MEEC, "Middle Egypt Electricity Company". These include loose connections, polluted insulators and micro-roughness on line conductors and insulator hardware. The detection methodology is based on measuring ultrasound emissions from these weak points to warn against impending failures and subsequent supply interruptions. Laboratory testing made it possible to discriminate between loose-connection arcing, polluted-insulator "baby arcs" and sharp-edge corona according to the sound pattern. However, there can be occasions where sound pattern may prove confusing in discrimination between baby arcs and loose-connection arcing. In this case, recording of acoustic signals was found to be a useful tool for such discrimination.

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