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HIGHER HARMONICS IN EARTH FAULT CURRENTS IN MV INSULATED NEUTRAL NETWORKS HELP DETECT AND EVALUATE THE FAULT

ABSTRACT

This paper represents the analyses of some basic earth fault events in a real electric power distribution network with isolated neutral point. The special attention is given to the situation when the load side end of a broken conductor has an earth contact. This kind of a fault is very difficult to be detected by protection devices, much more than common type of the earth fault predominantly analysed in the literature. Considerable number of measurements of the live system under real earth fault situations has been performed. Certain attention is also given to the analyses of higher harmonic components, especially to the 5th harmonic, in the earth fault current and influence of the resistance R_f .