

A Critical Review on the Contamination Effect on Distribution Overhead Lines

ABSTRACT

Year by year, performance of the power system distribution lines is one of the important subject that need to be considered. This paper presents a review on the effects of contamination on distribution overhead lines. Apart from the physical configuration of the lines such as lower in height and simple build-up structure, the location of the lines and the withstand capability of the systems are among another factors that determine the performance of the line. Insulator, which is used in between the cross-arm and phase conductor for instance, is very much sensitive to the surrounding environment such as humidity (wet and dry) and contamination such as salt, cement, dust, smog and etc. In the event of the direct or indirect effects of the lightning for instance, this contamination will affect the breakdown strength of the insulator which will result in the flashover across the insulator or coordination gap. This paper will consider in details the effect from different contaminants and different types of testing in evaluating the performance of the insulator. At the end of the paper, some mitigations approaches will be suggested with respect to the issue being discussed.

Keyword: Lightning, Insulator, Contamination, Withstand Capability, Distribution System