

## **A comparison of double-end partial discharge localization algorithms in power cables**

### **ABSTRACT**

The double-end partial discharge (PD) measurement method is the most common method for measuring and localizing PD sources in power cables. The sensitivity of the PD sensor, the processing speed of the data acquisition unit, and the method of the PD localization algorithm are the three main keys to ensuring the accuracy of the PD source localization on power cables. A new multiend PD localization algorithm known as segmented correlation trimmed mean (SCTM) has recently demonstrated excellent accuracy in the localization of PD sources on power cables. The algorithm, however, is only applicable to multi-end PD measurement methods. In this paper, the mathematical equation of the SCTM algorithm is customized to match the double-end PD measurement method. A MATLAB simulation was conducted to assess the performance of the SCTM algorithm in the doubleend PD measurement method. The maximum peak detection (MPD) algorithm, segmented correlation (SC), and SCTM algorithm were compared as PD localization algorithms. The SC algorithms have shown that identifying the correlation bond between two cues instead of the peak of the PD signal in the MPD algorithm significantly increases the PD localization accuracy. The results show that the SCTM algorithm outperforms the MPD and SC algorithms in terms of accuracy.