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### **C8.2.2.**

#### **Applications to cable diagnosis of a new methodology for partial discharge inference**

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The application to power cable and cable accessories of a new methodology for quality control and diagnosis based on partial discharge (PD) measurements is presented in this paper. The PD system records a large number of PD pulses, that can provide statistics of shape, height and phase derived quantities. Classification and separation of different PD sources, including noise, is then achieved resorting to artificial intelligence methods. The identification of PD source typology refers to each class of PD thus obtained, allowing very good identification effectiveness to be reached.

This procedure is validated through PD measurements made in laboratory on polymeric joints and cables with artificial defects, routine tests on MV 400 kV joints and cables fed by a resonant mobile test set at variable frequency. It is shown that efficient rejection of power-electronic noise is obtained in the measurements using the resonant generator, and that identification of the nature of defect(s) producing PD is successfully identified in cables and joints, thus improving reliability of quality control and diagnostic procedures.