

## ABSTRACT

The present invention relates to an automatic registration algorithm for a low-voltage distribution network carrier terminal. It uses each district concentrator as a centre, relies on a domain carrier node which has finished registration, and falls into neighbourhood node registration and non-neighbourhood node registration and neighbourhood and non-neighbourhood node supplementary registration, etc. to complete the registration process of the electric meters of the overall electric grid in a multi-stage wave manner, measures the proximity of the electric-grid registration nodes by virtue of signal quality parameters carried by power-line narrow-band carrier signals during cross-district propagation, and collects, calculates and compares these parameters through a home-domain confirmation algorithm, thereby accurately determining the home district of a carrier node. In addition, a high-efficiency conflict avoidance and multi-priority carrier packet transceiving control algorithm based on a physical-layer CSMA technology is adopted to process the priorities of conflict and discharging messages so that all types of communication nodes in a district simultaneously compete to use one and the same communication medium. The present invention can be used for electric-meter registration of a plurality of types of electric-grid meter-reading networks, and is in particular suitable for electric-meter registration of an electric-power carrier remote meter-reading network in a relatively complicated communication environment.