

# **Appropriate Media Access Control Protocol for Broadband Power-Line Access Network of Developing Countries: A Case of Tanzania**

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## **Abstract**

This paper investigates and compares the performances of different MAC protocols including ALOHA, slotted ALOHA and Carrier Sense Multiple Access with Collision Avoidance with the application to broadband powerline networks of Dar es Salaam and suggesting the appropriate one. In this investigation, the powerline network of Kariakoo was used as case study. During investigation, wireshark network protocol analyzer was used to analyze data traffic of similar existing network for projection and the data were simulated using MATLAB. From the results, pure ALOHA protocol gives the maximum throughput of 15.99%, slotted-ALOHA protocol gives 21.16% and CSMA/CA gives the maximum throughput of 30.6% under the same traffic load of 0.28Erlang keeping arrival rates and packet lengths constant.