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PII: S1434-8411(17)31544-3
DOI: https://doi.org/10.1016/j.aeue.2018.03.023
Reference: AEUE 52276

To appear in: *International Journal of Electronics and Communications*

Received Date: 22 June 2017
Accepted Date: 14 March 2018

Please cite this article as: W. Shi, S. Wang, Z. Wang, E. Wang, An efficient channel assignment algorithm for multicast wireless mesh networks, *International Journal of Electronics and Communications* (2018), doi: https://doi.org/10.1016/j.aeue.2018.03.023

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Abstract

Multicast can enhance the performance of wireless mesh networks (WMNs) effectively, which has attracted great attentions in recent years. However, multicast communication in WMNs requires efficient channel assignment strategy to reduce the total network interference and maximize the network throughput. In this paper, the concept of local multicast is proposed to measure interference and solve hidden channel problem in multicast communication. Basing on the concept, we propose a channel assignment algorithm considering the interference of local multicast and forwarding weight of each node (LMFW). The algorithm fully considers partially overlapped channels and orthogonal channels to improve the network performance. Simulations show that the proposed algorithm can reduce interference and improve network capacity of WMNs.

Keywords: Wireless mesh networks, Partially overlapped channels, Local multicast, Channel assignment

1. Introduction

Wireless mesh networks (WMNs) have emerged as a new paradigm, which is an effective approach to solve the "last mile problem" [1, 2]. WMNs are composed of three types of

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