

# Measurement-based methods for channel selection in 802.11 WLANs

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## Abstract

IEEE 802.11-based WLANs are becoming the dominant access technology for enterprises, homes, and hot spots. Standardisation bodies have recently released the so-called 5G 802.11ac technology. This paper addresses the channel selection problem in 802.11 networks. We first propose a new hybrid metric for interference measurement and characterisation. The new metric combines power and channel occupancy time. Then, we develop algorithms for dynamic channel selection based on the proposed metric. The proposed algorithms assign channels to access points (APs) in a way that minimises interference among interfering cells. We present results of a real case study that demonstrate the merit of the proposed algorithms to effectively reduce interference effect and improve network performance.

**Keywords:** WLANs, wireless LANs, local area networks, IEEE 80211 networks, channel selection, interference mitigation, interference measurement, channel occupancy time, network performance