Abstract

Demand for higher data rate wireless applications has led to scarcity in radio frequency spectrum. Spectrum access achieves near-optimal spectrum utilization efficiency with the advent of cognitive radio technology. In cognitive radio network (CRN), each cognitive user, also called secondary user (SU), senses and uses radio spectrum opportunistically while regulating the interference constraint. This article focuses the radio resource allocation considering interference temperature constraints for the network coded cognitive cooperative network (NCCCN). Analog network coded (ANC) Orthogonal-Frequency-Division-Multiplexing (OFDM) improves the capacity of the cognitive cooperative network (CCN). Moreover, CCN enhances the spectrum utilization efficiency. Power allocation optimization problems have been formed that maximize the data transmission rate of NCCCN under the total transmit and peak-interference powers or the total transmit and average-interference powers. The spectral efficiency of the proposed network is compared with the spectral efficiency of CCN without ANC. Simulation results show that the proposed NCCCN enhances spectral efficiency in compared to the CCN without ANC.
References

- FCC. Establishment of interference temperature metric to quantify and manage interference and to expand available unlicensed operation in certain fixed mobile and satellite frequency bands. ET Docket 03–222, Notice of Inquiry and Proposed Rulemaking, Dec 2003.

- FCC. Establishment of interference temperature metric to quantify and manage interference and to expand available unlicensed operation in certain fixed mobile and satellite frequency bands. ET Docket 03–289, Notice of Inquiry and Proposed Rulemaking, Nov 2003.

Index Terms

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Keywords

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