Karlsruher Institut für Technologie

Communications Engineering Lab (CEL)
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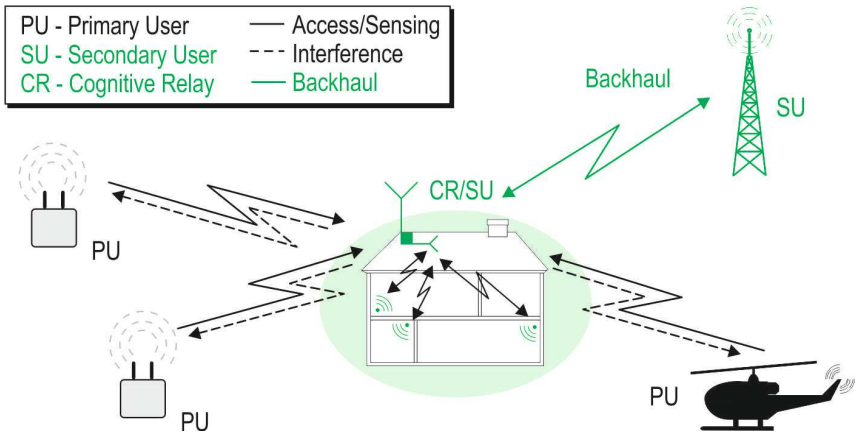
Deployment of Square law Selector and Combiner for Cognitive Relay

Bachelorarbeit

Projekt

Future technologies or implementations intend to redefine the spectrum access, in order to make its usage more efficient. The goal can be achieved by exploiting the degrees of freedom in time and/or spatial domain. One such criterion is to reuse the non allocated spectrum that is, primary secondary usage of the spectrum. Motivated by the facts, Cognitive Relay (CR), a small cell deployment for secondary user is proposed. CR is meant to detect the signals of the primary user through energy detection. Following the advancement in multiple antennas, antenna diversity can be used to improve the operating characteristics (detection probability and false alarm probability).



Aufgabenstellung

In the literature, there exist two kinds of detectors that use antenna diversity namely: square law selector and square law combiner. The task of the thesis is to understand the theory and deploy these two detectors to demonstrate the diversity gain over the hardware. Concerning the hardware platform, CEL provides USRP B200, a software defined architecture that supports multiple antennas.

Voraussetzungen

Basic knowledge of communications theory and probability theory.
Fun with hardware and practical implementations.

Institut

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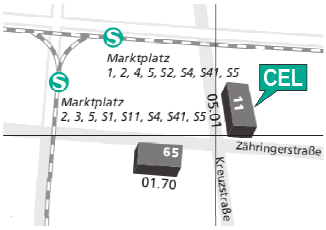

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