

## Documents

Ghanem, F., Hall, P.S.

**A bandwidth reconfigurable antenna for cognitive radios**

(2010) *Ultra-Wideband, Short Pulse Electromagnetics 9*, pp. 433-438. Cited 1 time.

**Abstract**

Cognitive radios have two operating modes, the searching mode where the system looks for the bandwidth to operate in and the operating mode where users transmit and receive information data through this bandwidth. In the first mode, one may have a very wide bandwidth antenna to be able to scan all the spectrum and in the operating mode one may have a narrow bandwidth antenna to filter out unwanted signals. In this chapter, we present a new antenna capable of operating in both UWB and narrowband modes, which is also tunable in the operating (narrowband) mode. It is composed of a microstrip disc monopole with defect slots in its ground plane. When the slots are deactivated, the antenna exhibits UWB behaviour from 2 to 10 GHz. To narrow the frequency bandwidth, defect slots are activated to act as a band-pass filter that narrows the antenna response. The activation and deactivation of the slots can be achieved by using switches located under the antenna feed line. In this case, the antenna response can be tuned by varying the slots' length. To examine the presented approach, both simulated and measured results are presented and discussed. © Springer Science+Business Media, LLC 2010.

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