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Studying an Inexpensive Wire Discone Antenna as a Candidate for TVWS Spectrum Monitoring / Sensing

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Abstract

Monitoring and sensing of spectrum are becoming more and more important, as the subject of using underused TV White Spaces (TVWS) spectrum by software defined radios (SDR) and cognitive radios is advanced forward towards practical applications. Correctly identifying available TVWS bands is critical for success of TVWS based broadband communications, not causing interference to reception of TV broadcast by TV receivers. This paper discusses side effects encountered with a popular design of a wire discone antenna. AntennaCraft model ST4 is exemplified as an inexpensive candidate for spectrum monitoring and sensing in UHF frequency band. The study was done by both simulation and measurements, with well matching results. The candidate antenna was found to introduce notch banded loss in the system sensitivity. The influence of a potential mechanical damage onto the sensitivity of the antenna system has also been considered, and was found to be relatively small, under 3 dB.