Within the field of ad-hoc wireless networks, sensor networks have the most hopeful future, due to the amount of civilian applications that can give to us. In this kind of networks, routing is a critical and important research subject. This document studies and quantifies the effect of AODV routing protocol in a real sensor network using IEEE 802.15.4 radio technology and tinyOS operating system, characterizing parameters like bandwidth, latency, energy cost and reactivity after topology changes.

Key words: tinyOS, AODV, routing protocol, IEEE 802.15.4, real network measurements, test bed.