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Spectral interference study of WiFi on wireless sensor networks

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In this paper interference of Wifi on wireless sensor networks (WSN) is studied. Indeed, these networks share the 2.4GHz industrial, scientific and medical (ISM) band with Bluetooth, Wifi, wireless USB, cordless phone and microwave ovens. How large is the interference between these devices? In all these standards different modulation techniques like frequency hopping, direct-sequence spread spectrum and orthogonal frequency-division multiplexing (OFDM) are involved. The frequency spectrum of WSN and of Wifi is measured. We will show that the frequency overlap of 802.11g on WSN is greater than that of a 802.11b channel. Next the effect of a Wifi interferer on a WSN will be studied. Based on these interference results it is possible to deduce the bit error rate and packet error rate. Also a method for co-operative and/or non co-operative interference suppression can be developed.

8e UGent - FirW DOCTORAATSSYMPOSIUM

woensdag 5 december 2007 | 14h00 | Het Pand | Onderbergen 1 | 9000 Gent

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