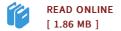# Statistical Modeling of Indoor Data Traffic in the 2.4 GHz ISM Band for Cognitive Radio Systems

By Muhammad Khurram Ehsan

Kassel University Press Apr 2017, 2017. Taschenbuch. Condition: Neu. Neuware - A spectrum survey is the key to quantify the spectrum usage in a realistic manner. Many spectrum surveys have already been conducted in the different areas of world. These spectrum surveys are beneficial for policy makers to assist them in optimizing the spectrum management policies. The optimization of spectrum policies is based on information about the usage patterns of the different wireless services provided by the spectrum surveys in the observed radio bands. The spectrum surveys also help to define the mechanism for efficient dynamic spectrum access (DSA) using the prior knowledge about the distribution of the observed data traffic in cognitive radio (CR) systems.In this work, the observed data traffic is modeled probabilistically using two different approaches, namely employing unconditional and conditional models. In the unconditional modeling approach, the correlation statistics of the observed data traffic are modeled using decaying exponentials. The multivariate Gaussian mixture (MGM) is found to be a suitable andidate to model the multivariate observed data traffic in the industrial, scientific and medical (ISM) band based on log-likelihood criterion using the unconditional modeling approach. In conditional modeling, the observed data traffic is first clustered into...

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