Abstract

With the introduction of new media distribution concepts such as "triple play"-offers, it is very important to provide reliable wireless networks for media transfer within the home. Wireless transmission of audio-visual data between multimedia devices in the home puts very high demands on the network and the underlying physical data transmission.

Furthermore, since a broad introduction of such systems to the consumer market can be expected, the available spectrum for wireless local networks will become a critical bottleneck. As radio propagation does not tend to stop at the boundaries of a single home, mutual interference between nodes of adjacent networks will arise. Such networks with high node density even increase the high demands on the performance of home media networks requiring network organization.

Channel modelling is one of the most critical aspects to be considered for the wireless networks design. The challenge is to obtain complete, descriptive and simple models, which allow developping simulations efficiently. Channel models predict among other effects the power loss suffered by a signal when propagates through an environment. Moreover, the in-house field is affected by dynamic attenuators.

This thesis contributes to the modeling of wireless in-house channels. In order to parameterize the models, numerous measurements were carried out. Both, static and dynamic scenarios with human influences were anlyzed. Several channel caracteristics are gained as consequence.The results are applied to improve the efficiency of wireless LAN for multimedia home networks.