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## Characteristics of the Polarised Off-Body Channel in Indoor Environments

Abstract - This paper addresses the depolarisation effect in off-body Body Area Networks channels, based on measurements performed at 2.45 GHz in an indoor environment. Seven different scenarios, involving both static and dynamic users, were considered, taking a statistical perspective. The analysis of the cross-polarisation discrimination is performed, as well as the analysis of path loss in co- and cross-polarised channels. Results show a strong dependence of the cross-polarisation discrimination and of channel characteristics on the polarisation and propagation condition, i.e., line-of-sight (LoS), non-LoS or quasi-LoS. The variation in distance, from 1 m to 6 m, shows very little impact. In dynamic scenarios, the shadow fading is observed to exhibit a Lognormal distribution, whereas multipath fading is seen to follow the Nakagami one, with essentially different parameter values in the co- and cross-polarised channels, showing a trend towards Rice in the former and Rayleigh in the latter cases. Based on results, a model is proposed for a dynamic off-body channel.

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