Perspectives for the use of MIMO in Dynamic Body Area Networks

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Abstract:

The use of cooperative techniques / multi-antenna systems in Body Area Networks, like virtual MIMO, requires a joint analysis of correlation and power imbalance among on-body links. This topic is addressed through full wave simulations, for a user in free space wearing nine on-body antennas, operating at 2.45 GHz, in dynamic scenarios (walk and run). Correlation and power imbalance were found to follow Normal and Rayleigh Distributions, respectively. Their joint mapping identified the most favourable transmitter and receivers locations. Transmitters on the ears are the ones with more links (55%) satisfying the minimum MIMO requirements.