BAN Channel Model with Multi-Scenario Applications

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Abstract:

Wireless monitoring of vital and physiological signs is one of the most rapidly growing applications in personal communication systems. Ultra Wide-Band (UWB) is a favourable technology for wearable medical devices due to its short range and high data rate. The Wireless Body Area Network (WBAN) technology which defines the necessary protocols to interconnect a set of wearable radio-enabled sensors is poised to revolutionize human health monitoring. However, designers of such systems face a number of challenging tasks. In depth understanding of Radio Frequency (RF) propagation on the body surface is needed in order to design an efficient transceiver, specially with multi-scenario applications. A detailed simulation study can be extrem ely beneficial in highlighting the propagation behaviour of the body surface and determining the best scenarios for limited physical measurements. In this paper, a Body Area Network (BAN) channel model is presented with multi wearable medical sensors around a human body.