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Experimental Investigation of On-Body Channel Modelling at 2.45 GHz

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Abstract : This paper presents the experimental investigation of on-body channel fading at 2.45 GHz considering two effects of the user body movement; stationary and mobile. A pair of body-worn antennas was utilized in this measurement campaign. A statistical analysis was performed by comparing the measured on-body path loss to five well-known distributions; lognormal, normal, Nakagami, Weibull and Rayleigh. The results showed that the average path loss of moving arm varied higher than the path loss in sitting position for upper-arm-to-left-chest link, up to 3.5 dB. The analysis also concluded that the Nakagami distribution provided the best fit for most of on-body static link path loss in standing still and sitting position, while the arm movement can be best described by log-normal distribution.

Keywords : on-body channel communications, fading characteristics, statistical model, body movement
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