Experimental Characterization of Shadowing Correlation for Relay system

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Abstract:

A multi-link measurement campaign with relays was carried out. The shadowing cross-correlations between a BS-MS (Base Station to Mobile Station) link and a RS-MS (Relay Station to Mobile Station) link or between two RS-MS links were experimentally characterized. The correlation coefficients were found to vary from -0.04 to 0.57. Furthermore, based on the significantly large amount of measurement samples, the shadow fading angular properties were examined. It was observed that the correlation of 0.5 was found when the angle ? seen from MS to the transmitters is smaller than 10 degrees. Although correlations observed with the angle ? higher than 10 degrees present different angular dependences, their coefficients are minor and considered as negligible. This result indicates that a correlation coefficient of 0.5 should be taken into account in analysis tools for 0-10 degree angular sample groups. A simple uncorrelated shadow fading model for signals from different transmitters can be used for the other cases.