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Enhancement of MIMO QoS using RNS coding over various channels

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The performance of wireless communication systems is affected mainly by the environment of its associated channel, which is characterized by a dynamic and unpredictable behavior. In this paper different statistical satellite channel models are studied with emphasize on two main models, first is the Rice-Log normal model, due to its close representation for the satellite channel environment including shadowing and multi-path components that affect the propagated signal along its path, and second a three state model that takes into account different fading conditions (clear area, moderate shadow and heavy shadowing). The communication system is enhanced through the usage of Residue Number System (RNS) coding making benefit of its inherent features and is highlighted in the paper. The transmission system Bit Error Rate (BER), Peak-Average-Power Ratio (PAPR), and the channel capacity for each fading models are measured and analysed. These simulations are implemented using MATLAB tool and the results have shown the performance of transmission system over different channel models.

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