Quantization-based Complexity Reduction for Range-dependent Modified Gilbert Model

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Abstract:

In this contribution we propose an algorithm for dimension reduction of the previously introduced range-dependent modified Gilbert model For reduction of the model dimension we suggest to jointly quantize model parameters estimated based on very narrow measurement intervals. We analyze the influence of the number of quantization levels on the model performance and based on this analysis find the optimal number of quantization levels. Furthermore, we show that selected environmental and propagation effects, influencing the error pattern, can be identified through the model parameters quantization. Finally we demonstrate that these effects can be accurately reproduced by our model for a specific compos ition of the parameters.