Optimized SCMA Codebook Design Using Rotation Based Sub-Divided Constellation for Overloaded System

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Short Report

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Abstract

5G in wireless communication aims at deploying massive connectivity. Sparse Code Multiple Access (SCMA), proves to be an emerging candidate with multidimensional codebooks proposing, high shaping gain and advanced multiuser detection. A framework for designing a codebook for 200 % overloaded SCMA system with system model is presented in this paper. This article aims at delineating a codebook by subdividing the Mother Constellation (MC) and rotating it to achieve a better Symbol Error Rate (SER) performance over higher values of SNR. Different Codebook designs are taken into consideration for comparing with the sub-constellation based 200% overloaded SCMA. Abstract — 5G in wireless communication aims at deploying massive connectivity. Sparse Code Multiple Access (SCMA), proves to be an emerging candidate with multidimensional codebooks proposing, high shaping gain and advanced multiuser detection. A framework for designing a codebook for 200 % overloaded SCMA system with system model is presented in this paper. This article aims at delineating a codebook by subdividing the Mother Constellation (MC) and rotating it to achieve a better Symbol Error Rate (SER) performance over higher values of SNR. Different Codebook designs are taken into consideration for comparing with the sub-constellation based 200% overloaded SCMA.

Full Text

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