A HIGH−ORDER−MODULATION SPACE−TIME RECEIVER WITH INCREASED PEAK RATE AND THROUGHPUT FOR WIDEBAND CDMA (WedAmOR8)

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Abstract :

In this work, we significantly increase the peak rate of the wideband CDMA spatio−temporal array−receiver (STAR) by enabling its operation with high−order modulations (HOM) up to 256QAM (i.e., peak rate of 768 Kb/s per spreading code with 32 spreading factor and 1/2 coding rate in 5 MHz). In order to allow an effective rate control for adaptive modulation and maximize throughput with the resulting HOM−STAR, we propose the use of power control (PC) jointly with new rate allocation schemes (RAS). At a load of 20 users per cell or sector, simulations suggest that HOM−STAR with the new RAS can deliver an average throughput per user of 120−140 Kb/s, i.e., an increase of about 100% over conventional RAS.

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