Trellis Coded Modulation for Mobile Satellite Communication Systems

Gunawan Wibisono, author

Abstrak

The BER performance of trellis coded (TC) 8PSK with 2-branch selection (SC) and maximal ratio combining (MRC) diversities on mobile satellite communication system, which channel characterized by Nakagami fading channel is investigated. The special case of 2 branch SC and MRC diversities on independent and spatially correlated Nakagami fading are analyzed in detail, It is shown that the BER performance of TC 8PSK with diversity is better than that system without diversity, and the BER performance of system with diversity increases with increasing the Nakagami fading parameter m. Although the correlation between branches causes signal-to-noise ratio (SNR) loss relative to uncorrelated fading case for 2 branches SC and MRC diversities, the SC and MRC diversities can lead the diversity gain, that is, the improvement of BER performance of TC 8PSK with diversity is obtained over the TC 8PSK without diversity. In addition, the effect of antenna separation which causes cross correlation between the fading signals envelops on the performance of TC 8PSK with 2 branch SC and MRC diversities is also considered.