Abstract

F. Lotti, G. Valle

"Study and development of new receiver techniques based on neural networks for low orbit satellite telecommunications systems with multicarrier CDMA multiple access”

The continuous advance for multimedia applications and satellite communications laid the basis for the study of new transmission techniques that made possible new multimedia satellite services.

The wide band and asynchronous peculiarities of multimedia transmission addressed the attention towards Spread Spectrum multiple access techniques, both single carrier and multiple carrier (MC-CDMA, MC-SS).

This thesis deals with the multimedia data transmission with multi carrier CDMA (MC-CDMA) multiple access technique, focusing the attention on innovative techniques of reception based on neural networks in low orbit satellite systems signal processing.

The realization of simulation system based on the MATLAB™ SIMULINK™ library tools has allowed to analyze the performances in bit error rate terms in the fixed and variable bit rate multiuser transmission on uplink and downlink satellite channel LEO.