WIRELESS COMMUNICATIONS DEVICE INCLUDING A JOINT SPACE-TIME OPTIMUM FILTERS (JSTOF) USING QR AND EIGENVALUE DECOMPOSITIONS

ABSTRACT

A wireless communications device may include a wireless transmitter and a wireless receiver. The wireless receiver may include a filter for reducing co-channel interference and may include a multi-channel, space-time filter circuit that filters n signal parts that have been split from a communications signal by jointly estimating space-time filter weights and multi-channel impulse responses (CIRs) based upon QR and eigenvalue decompositions. The filter may further include a multi-channel, matched filter circuit that receives multi-channel signals from the multi-channel, space-time filter circuit and has a filter response that is provided by a channel impulse response estimation from the space-time filter circuit.

(Fig. 1)