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(54) Title: **ROBUST LOW COMPLEXITY MULTI-ANTENNA ADAPTIVE MINIMUM MEAN SQUARE ERROR EQUALIZER**

(57) Abstract: Over a channel, a signal including a desired portion associated with a desired channel and an undesired portion mixed with said desired portion may be received. Based on prior knowledge and/or empirical estimation of the desired channel and an empirical estimate of the signal cross-covariance, the desired portion from the received signal may be recovered by adaptively equalizing the channel. In one embodiment, a receiver (10), such as a mobile device (e.g., a cellular phone) includes a processor (75) operably coupled to a communication interface (15) including at least two antennas (55) to receive the signal. The receiver (10) may further include a MODEM (70) that may be operably coupled to the processor (75), that includes an adaptive equalizer (86) capable of detecting the signal in the presence of co-channel interference from several independent sources, inter-symbol interference and fading, for recovering the desired portion in a cellular environment with time division multiple access (TDMA) to enable digital transmission of the signal. Thus, a blind adaptive space-time equalization on the signal based on minimum mean square error (MMSE) may be provided.

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