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(54) Title: **METHOD AND APPARATUS FOR CELLULAR RADIOTELEPHONE BASE STATIONS USING SELECTED MULTIPLE DIVERSITY RECEPTION**

(57) Abstract

A cellular radiotelephone base station communicates with cellular radiotelephones by receiving cellular radiotelephone communications energy (601) from cellular radiotelephones on an antenna array (510), processing (610) the received communications energy to produce at least three processed radiotelephone communications signals (611) representing communications energy received from a coverage sector, and selecting (620) at least two of the processed signals (621) for decoding (630) in a conventional decoder. Preferably, the selected signals are the processed signals having the highest power or signal quality. Diversity gain is achieved by processing the received communications energy to produce at least two processed first polarization signals representing received communications energy having a first polarization and at least two processed second polarization signals representing received communications energy having a second polarization, and selecting at least one of the processed first polarization signals and at least one of the second polarization processed signals for decoding. Preferably the selected processed first polarization and second polarization signals are the signals from each polarization having the highest power or signal quality.

