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(54) Title: WIRELESS COMMUNICATIONS METHODS AND SYSTEMS FOR SHORT-CODE AND OTHER SPREAD SPECTRUM WAVEFORM PROCESSING

(57) Abstract: The invention provides methods and apparatus for multiple user detection (MUD) processing that have application, for example, in improving the capacity CDMA and other wireless base stations. One aspect of the invention provides a multiprocessor, multiuser detection system for detecting user transmitted symbols in CDMA short-code spectrum waveforms. A first processing element generates a matrix (hereinafter, "gamma matrix") that represents a correlation between a short-code associated with one user and those associated with one or more other users. A set of second processing elements generates, e.g., from the gamma matrix, a matrix (hereinafter, "R-matrix") that represents cross-correlations among user waveforms based on their amplitudes and time lags. A third processing element produces estimates of the user transmitted symbols as a function of the R-matrix.



WO 02/073230 A3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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US CL :342/378

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 342/378; 375/180, 135,146; 370/320, 335, 342, 441

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,018,317 A (DOGAN ET AL) 25 JAN 2000 SEE FIGS. 1-50 AND COL.1-COL.102	1-205



Further documents are listed in the continuation of Box C.



See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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