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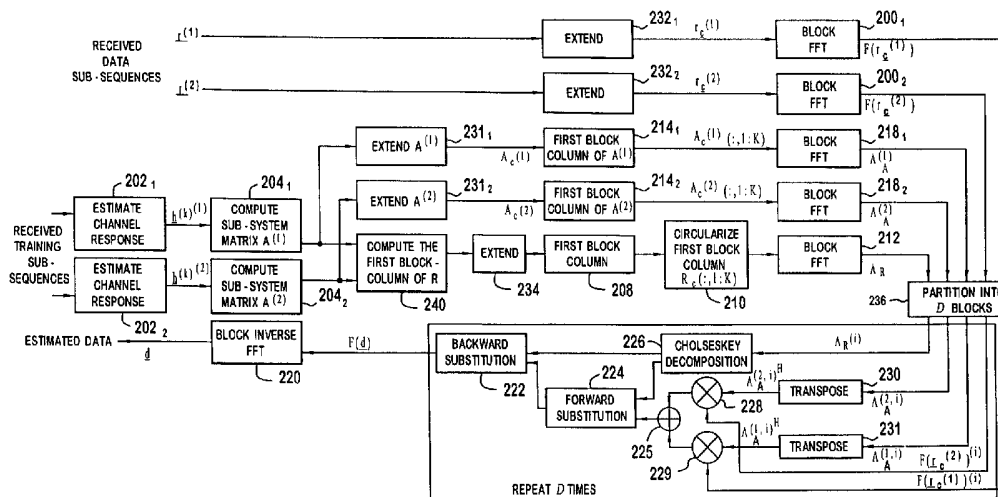
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(57) Abstract: K data signals, or bursts, are transmitted over a shared spectrum in a code division multiple access communication format. A combined signal is received and sampled over the shared spectrum, as a plurality of received vector versions. The combined signal includes the K transmitted data signals. A plurality of system matrices and an associated covariance matrix using codes and estimated impulse responses of the K data signals is produced. Each system matrix corresponds to a received vector version. The system and covariance matrices are extended and approximated as block circulant matrices. A diagonal matrix of each of the extended and approximated system and covariance matrices are determined by prime factor algorithm - fast Fourier transform (PFA-FFT) without division of the matrix. The received vector versions are extended. A product of the diagonal matrices and the extended received vector versions is taken. An inverse block discrete Fourier transform is performed by a PFA-FFT on a result of the product to produce the estimated data of the K data signals.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0021335 A1 (DE et al) 2003 January 30 (30.01.2003), figures 4, 5, paragraphs 37-76	1-59
Y	US 2003/0026325 A1 (DE et al) 2003 Feb. 06 (06.02.2003), figures 4, 5, paragraphs 37-86	1-59



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