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Hashem et al.

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(54) DYNAMIC SUB-CARRIER ASSIGNMENT IN OFDM SYSTEMS

(75) Inventors: Bassam M. Hashem, Nepean (CA);
David G. Steer, Nepean (CA); Shalini

S. Periyalwar, Ottawa (CA)

(73) Assignee: Nortel Networks Limited, St. Laurent

(CA)

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(52) **U.S. Cl.** **455/450**; 455/509; 455/414.1; 455/464; 370/203; 370/208

480; 375/260, 349

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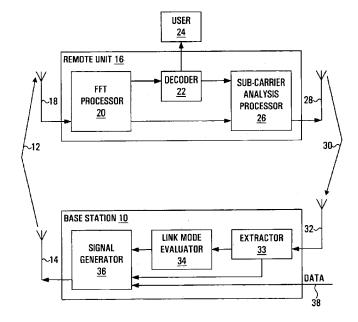
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Primary Examiner—Cong Van Tran

(57) ABSTRACT

A method and apparatus are provided for selecting and signaling the identity of sub-carriers to be used for transmission of data in a radio communication system, and for using other sub-carriers. A remote unit determines which sub-carriers are acceptable for use in data transmission by comparing the signal to interference ratio of each sub-carrier with a threshold. A base station transmits data over the acceptable sub-carriers at the optimum Link Mode or Link Modes. The base station may use some of the unacceptable sub-carriers for transmission of low sensitivity data at the optimum Link Mode, and may use some of the unacceptable sub-carriers for transmission of data at a lower Link Mode. The transmission power any unused unacceptable sub-carriers can be diverted to other sub-carriers.

23 Claims, 6 Drawing Sheets





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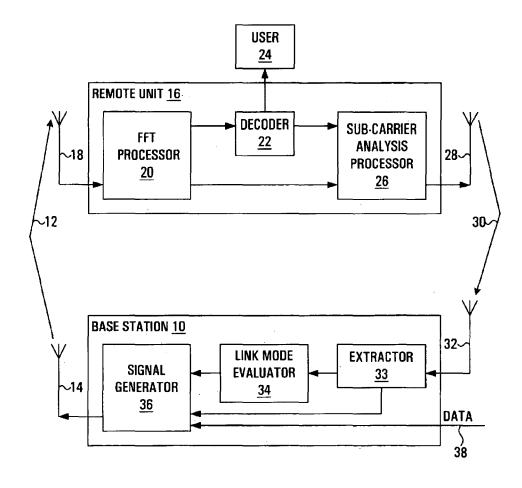


FIG. 1

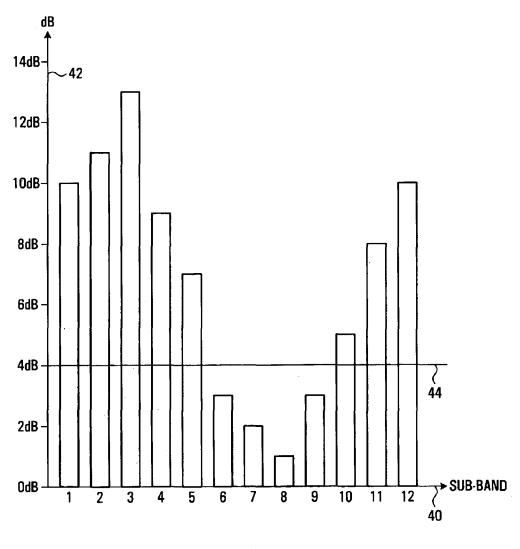
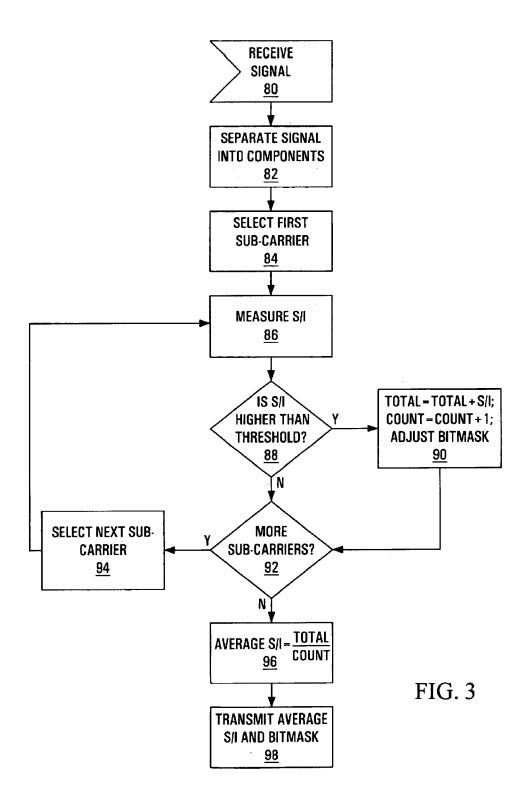
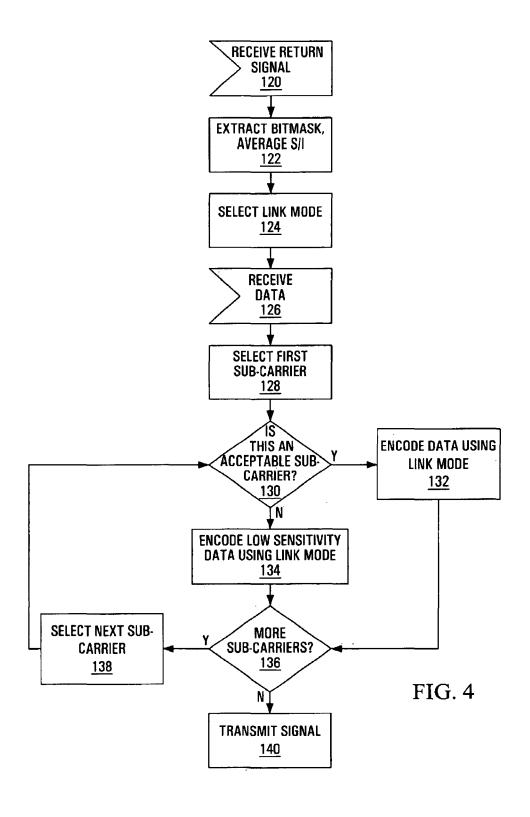


FIG. 2









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