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Yu et al.

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(54) **APPARATUS FOR TRANSMITTING AND RECEIVING DATA TO PROVIDE HIGH-SPEED DATA COMMUNICATION AND METHOD THEREOF**

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This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation of application No. 12/805,117, filed on Jul. 13, 2010, now Pat. No. 8,130,869, which is a continuation of application No. 12/401,293, filed on Mar. 10, 2009, now Pat. No. 7,782,968, which is a continuation of application No. 11/767,797, filed on Jun. 25, 2007, now Pat. No. 7,535,968.

(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**
H04L 27/00 (2006.01)

(52) **U.S. Cl.**
USPC **375/299**; 375/267; 375/260; 455/101; 370/240

(58) **Field of Classification Search**
USPC 375/299, 267, 260; 455/101; 370/240
See application file for complete search history.

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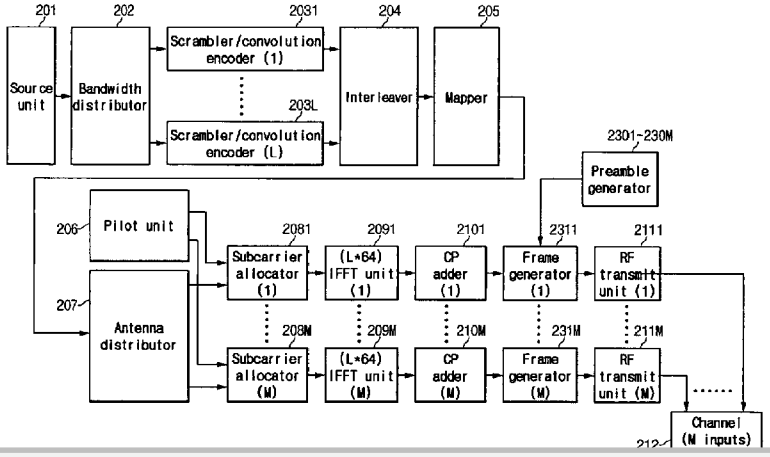
(57) **ABSTRACT**

In the present invention, data generated from a source unit are distributed to at least one bandwidth; the data distributed to the respective bandwidths are encoded in order to perform an error correction; the encoded data are distributed to at least one antenna; a subcarrier is allocated to the data distributed to the respective antennas, and an inverse Fourier transform is performed; a short preamble and a first long preamble corresponding to the subcarrier are generated; a signal symbol is generated according to a data transmit mode; and a frame is generated by adding a second long preamble between the signal symbol and a data field for the purpose of estimating a channel of a subcarrier which is not used.

48 Claims, 9 Drawing Sheets



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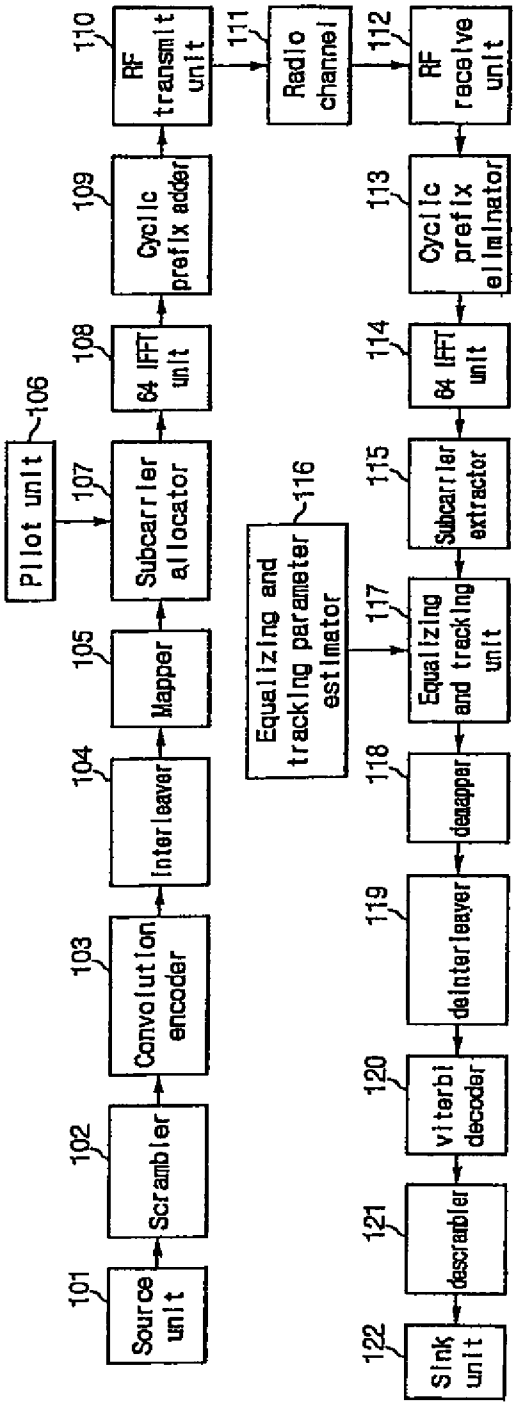


Fig. 1
(PRIOR ART)

Fig. 2

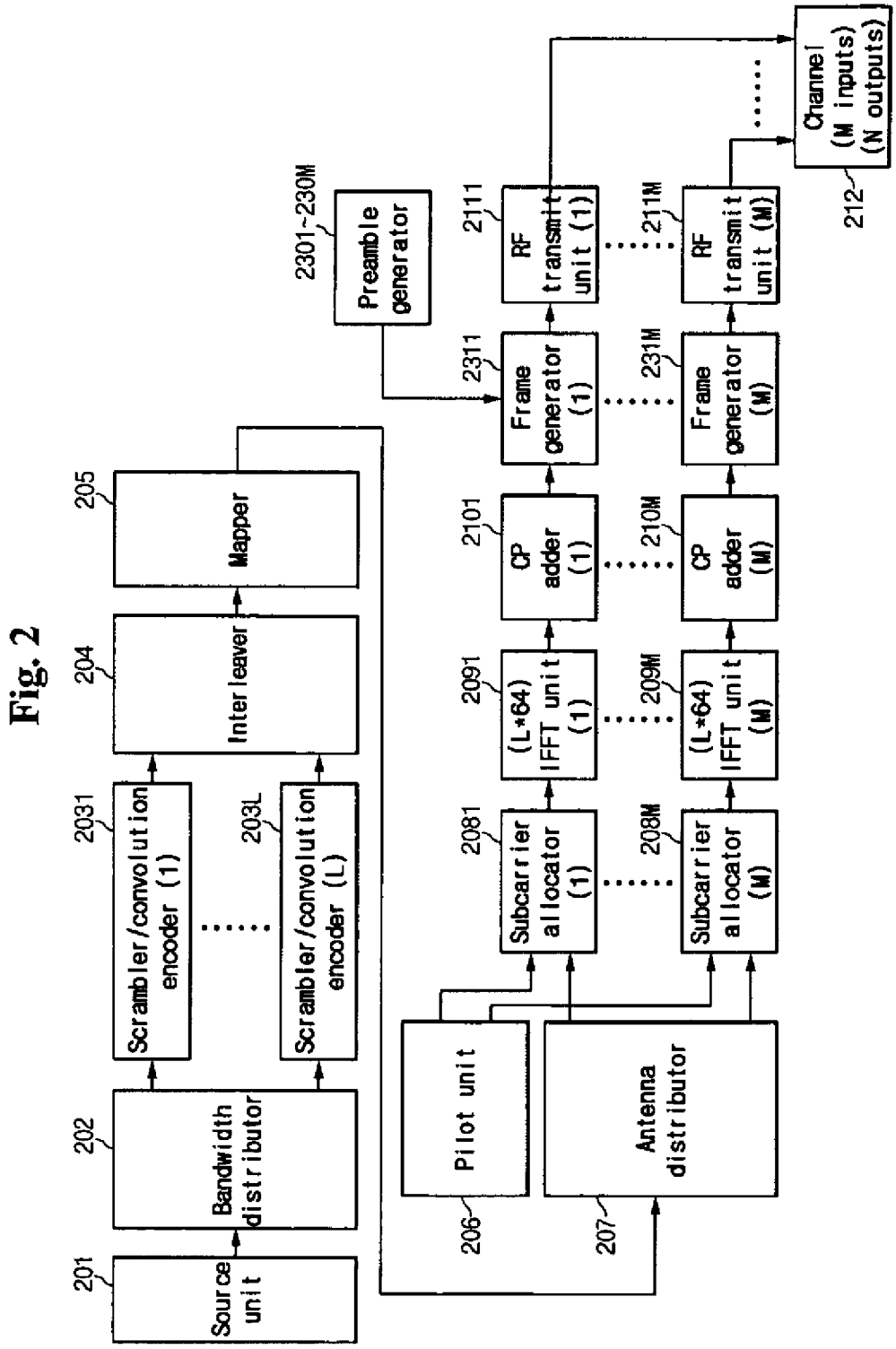
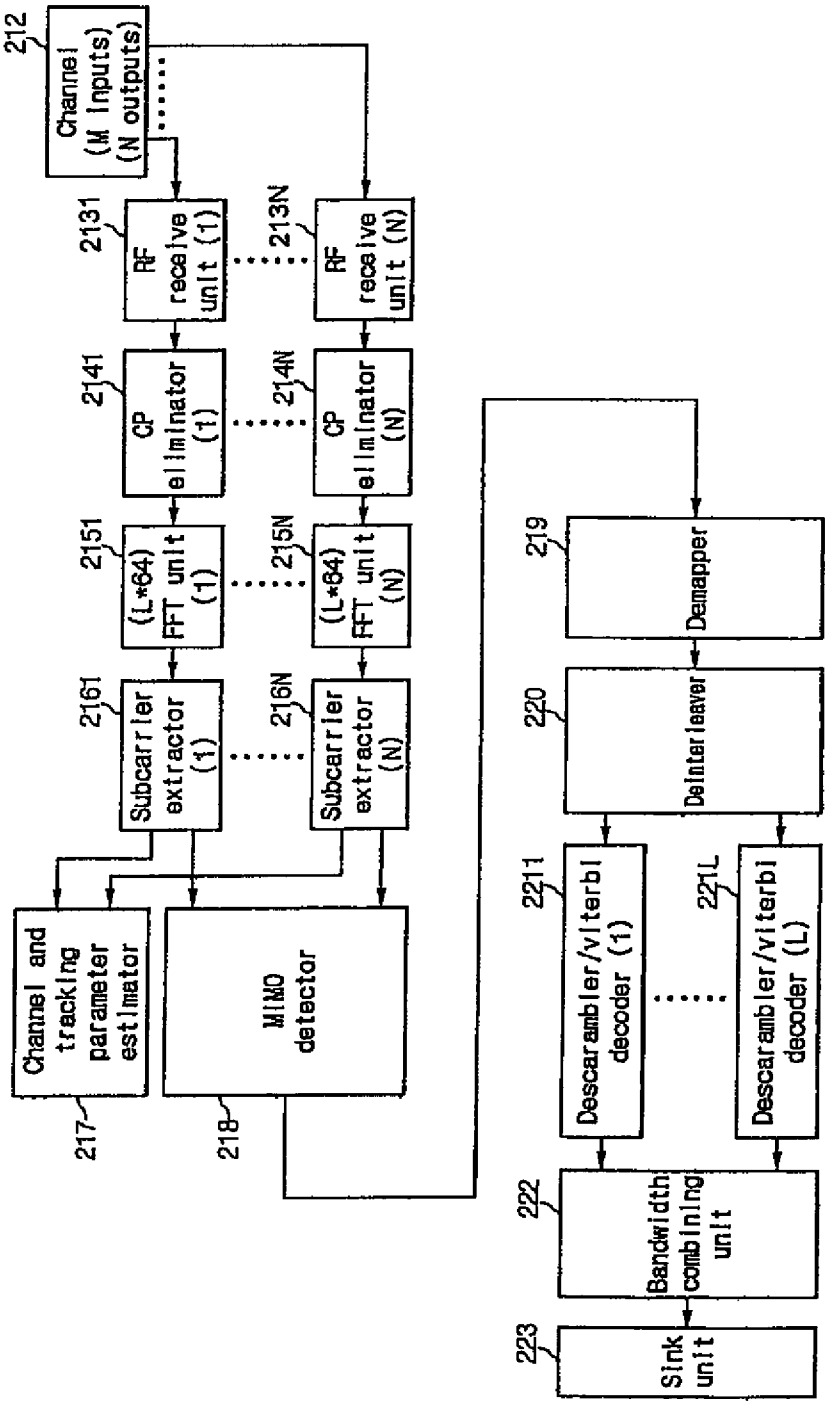


Fig. 3



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