

Exhibit A



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Wengerter et al.

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(54) **CONSTELLATION REARRANGEMENT FOR ARQ TRANSMIT DIVERSITY SCHEMES**

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H04B 7/02 (2006.01)

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(58) **Field of Classification Search** 375/267, 375/299, 295, 298, 308, 261; 370/349, 465; 714/748, 761, 701, 786
 See application file for complete search history.

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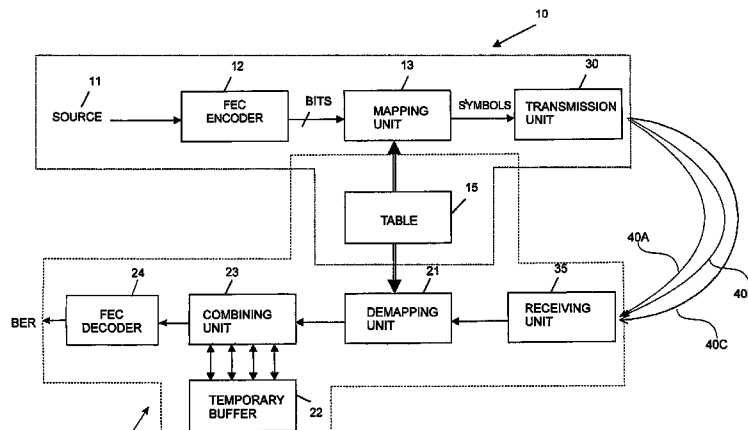
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(57) **ABSTRACT**

An ARQ (re-) transmission method of transmitting data in a wireless communication system wherein data packets are transmitted from a transmitter to a receiver, using a first transmission and a second transmission based on a repeat request. The method comprises the steps of modulating data at the transmitter using a first signal constellation pattern to obtain a first data symbol. The first data symbol is transmitted as the first transmission to the receiver using a first diversity branch. Further, the data is modulated at the transmitter using a second signal constellation pattern to obtain a second data symbol. Then, the second data symbol is transmitted as the second transmission to the receiver over a second diversity branch. Finally, the received first and second data symbol data symbol are diversity combined at the receiver. The invention further relates to a transmitter and a receiver embodied to carry out the method of the invention.

11 Claims, 6 Drawing Sheets



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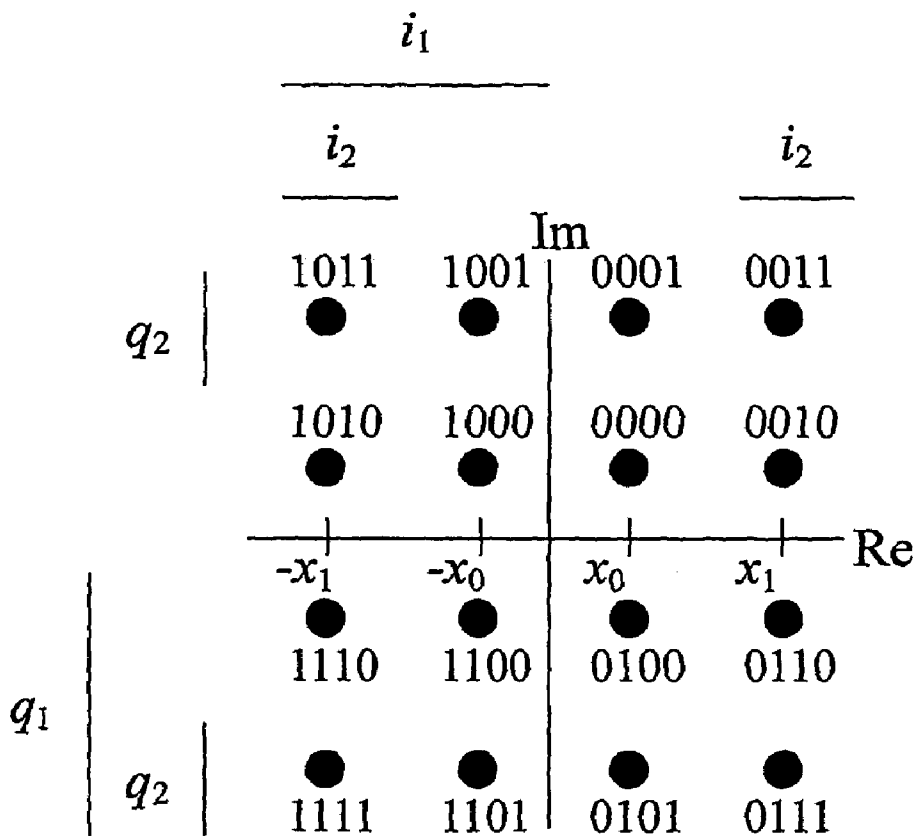
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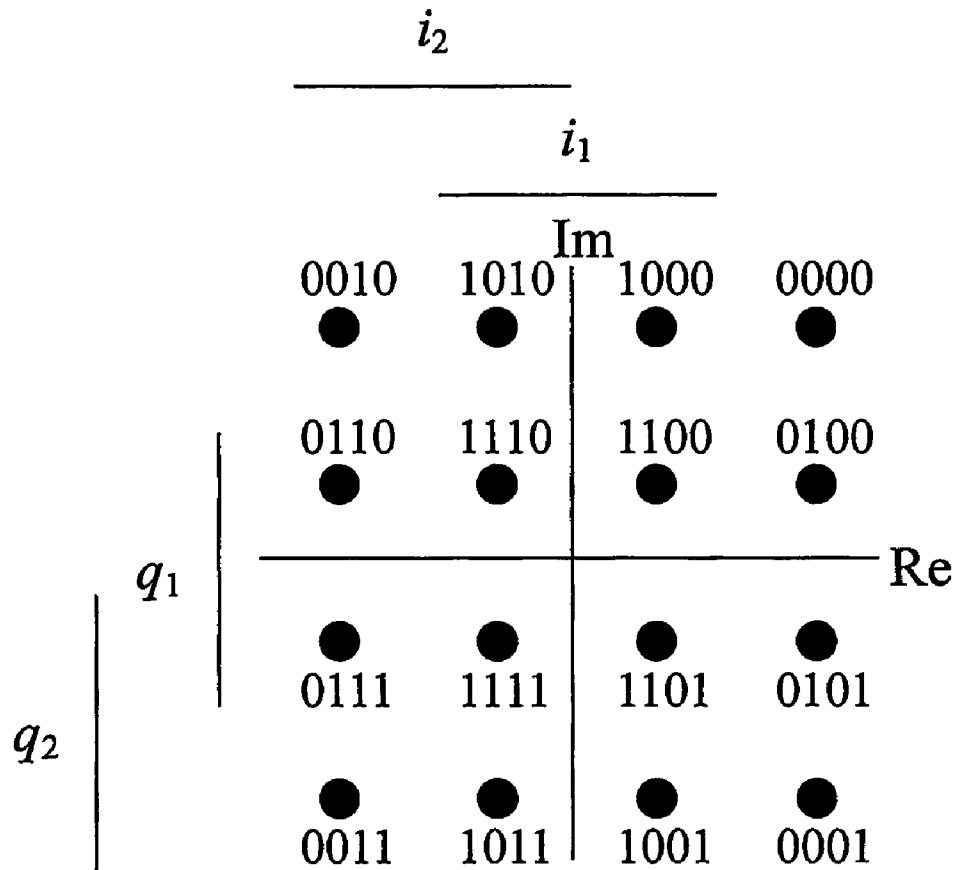
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Mapping 1 (bit-mapping order: $i_1q_1i_2q_2$)

FIG. 1



Mapping 2 (bit-mapping order: $i_1q_1i_2q_2$)

FIG. 2

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