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(54) **APPARATUS AND METHOD FOR TRANSMITTING/RECEIVING PREAMBLE SEQUENCE IN ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING COMMUNICATION SYSTEM USING PLURALITY OF TRANSMISSION ANTENNAS**

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See application file for complete search history.

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(57) **ABSTRACT**

A method for generating a preamble sequence in an OFDM (Orthogonal Frequency Division Multiplexing) communication system that uses A sub-carriers in a frequency domain and uses N Tx (Transmission) antennas, includes the steps of: generating N sequences, each having a length of 'B/N', by dividing B sub-carriers from among the A sub-carriers by the 'N' indicative of the number of the Tx antennas; and mapping, for each of the N sequences, individual components of the sequence to the B/N sub-carriers from among the A sub-carriers on a one by one basis in order to assign the components of the sequence to the B/N sub-carriers, and assigning null data to remaining sub-carriers other than the B/N sub-carriers from among the A-sub-carriers, such that a preamble sequence of a corresponding Tx antenna is generated.

25 Claims, 11 Drawing Sheets