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(54) **APPARATUS AND METHOD FOR GENERATING A PREAMBLE SEQUENCE IN AN OFDM COMMUNICATION SYSTEM**

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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 orthogonal frequency division multiplexing (OFDM) communication system having A subcarriers in a frequency domain. The method comprises generating a length-2×M×N preamble sequence, where 2×M×N is less than A, by using a length-N Golay complementary sequence and a length-M Golay complementary sequence; and assigning elements constituting the preamble sequence to 2×M×N subcarriers among the A subcarriers on a one-to-one mapping basis, assigning null data to the remaining subcarriers excluding the 2×M×N subcarriers from the A subcarriers, and then IFFT-transforming the assigned result into time-domain data.

26 Claims, 15 Drawing Sheets