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(54) **APPARATUS AND METHOD FOR GENERATING A PREAMBLE SEQUENCE IN AN ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING COMMUNICATION SYSTEM**

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(58) **Field of Classification Search** 370/203-211, 370/212, 215, 328, 330, 343, 344; 375/130, 375/260

See application file for complete search history.

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(57) **ABSTRACT**

Disclosed are an apparatus and a method for generating a preamble sequence in an orthogonal frequency division multiplexing communication system including a reference base station and a plurality of non-reference base stations and employing m sub-carriers in a frequency domain. A reference preamble sequence having a length equal to n is generated and mapped on a one-to-one basis with n sub-carriers of the m sub-carriers. A final preamble sequence equivalent to the reference preamble sequence is generated when the base station is a reference base station, or a phase of the reference preamble sequence is shifted by a predetermined phase in order to generate a phase-shifted final preamble sequence when the base station is a non-reference base station, thereby minimizing interference between neighbor base stations.

8 Claims, 10 Drawing Sheets

