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(71) Applicant (for all designated States except US): **INTER-DIGITAL TECHNOLOGY CORPORATION** [US/US]; 300 Delaware Avenue, Suite 527, Wilmington, DE 19801 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KWAK, Jaeyoung** [KR/US]; 181 Nantucket Place, Morganville, NJ 07751 (US). **OLESEN, Robert, Lind** [US/US]; 3 Country Club Drive, Huntington, NY 11743 (US). **BULTAN, Aykut** [TR/US]; 16-70 Bell Blvd., Apt. 515, Bayside, NY 11360 (US). **ZEIRA, Eldad** [US/US]; 106 East Neck Road, Huntington, NY 11743 (US). **KOO, Chang-Soo** [US/US]; 281 Altessa Blvd., Melville, NY 11747 (US). **OZLU-TURK, Fatih** [US/US]; 70 Willowdale Avenue, Port

Washington, NY 11050 (US). **HUANG, Yuejin** [CN/US]; 865 Broadway Avenue, Apt. 236A, Holbrook, NY 11741 (US). **PASAD, Kalpendu, R.** [IN/US]; 5 Chatham Court, Hicksville, NY 11801 (US).

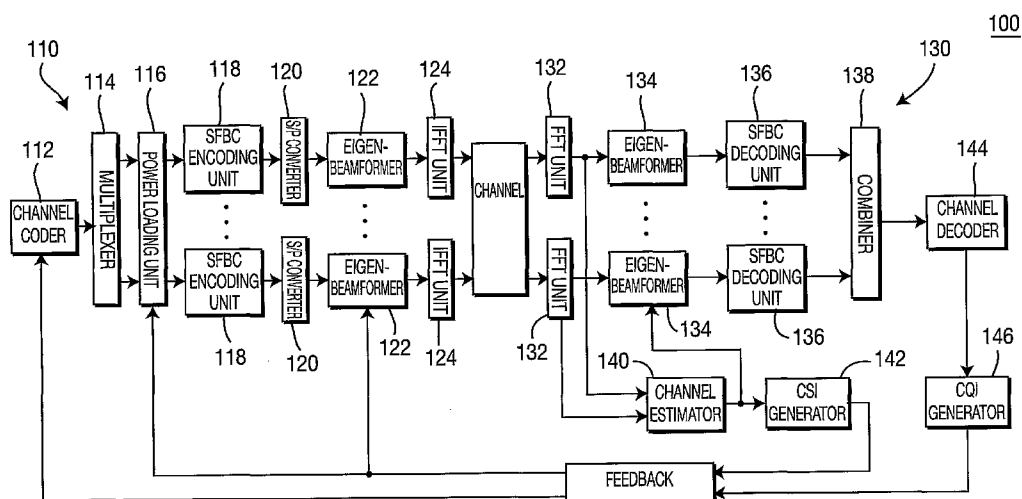
(74) Agent: **BALLARINI, Robert, J.**; VOLPE AND KOENIG, P.C., United Plaza, Suite 1600, 30 S. 17th Street, Philadelphia, PA 19103 (US).

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(54) Title: METHOD AND APPARATUS FOR IMPLEMENTING SPACE FREQUENCY BLOCK CODING IN AN ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING WIRELESS COMMUNICATION SYSTEM



(57) Abstract: The present invention is related to a method and apparatus for implementing space frequency block coding (SFBC) in an orthogonal frequency division multiplexing (OFDM) wireless communication system. The present invention is applicable to both a closed loop mode and an open loop mode. In the closed loop mode, power loading and eigen-beamforming are performed based on channel state information (CSI). A channel coded data stream is multiplexed into two or more data streams. Power loading is performed based on the CSI on each of the multiplexed data streams. SFBC encoding is performed on the data streams for each of the paired subcarriers. Then, eigen-beamforming is performed based on the CSI to distribute eigenbeams to multiple transmit antennas. The power loading may be performed on two or more SFBC encoding blocks or on each eigenmodes. Additionally, the power loading may be performed across subcarriers or subcarrier groups for weak eigenmodes.

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