



US 20140016549A1

(19) **United States**  
 (12) **Patent Application Publication** (10) **Pub. No.: US 2014/0016549 A1**  
 Novlan et al. (43) **Pub. Date: Jan. 16, 2014**

(54) **METHODS AND APPARATUS FOR CODEBOOK SUBSET RESTRICTION FOR TWO-DIMENSIONAL ADVANCED ANTENNA SYSTEMS**

**Publication Classification**

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(51) **Int. Cl.**  
*H04B 7/04* (2006.01)  
 (52) **U.S. Cl.**  
 CPC ..... *H04B 7/0417* (2013.01)  
 USPC ..... **370/328**

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(57) **ABSTRACT**

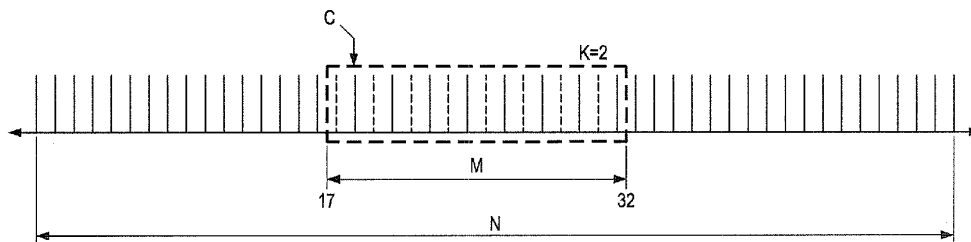
A user equipment (UE) in a wireless network having two-dimensional antenna systems performs a method of codebook sampling. The method includes receiving from an eNodeB (eNB) an indication of a restricted subset M of vertical precoding matrices, wherein M is less than a total number of vertical precoding matrices N in a codebook, the codebook comprising a plurality of vertical precoding matrices and horizontal precoding matrices. The method also includes feeding back vertical precoding matrix indicators (V-PMI) to the eNB based on the restricted subset of vertical precoding matrices.

(21) Appl. No.: **13/939,934**

(22) Filed: **Jul. 11, 2013**

**Related U.S. Application Data**

(60) Provisional application No. 61/670,936, filed on Jul. 12, 2012.



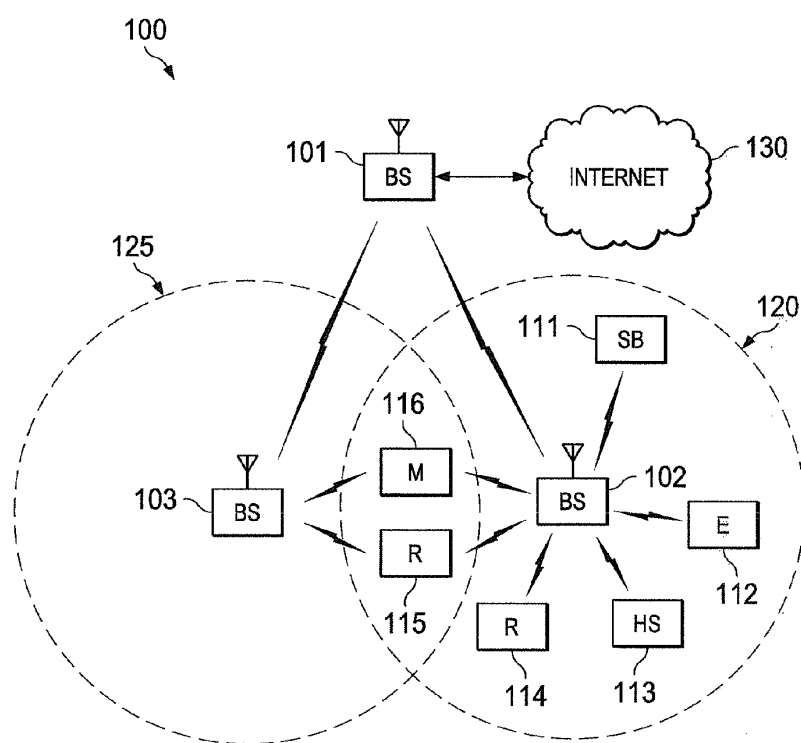
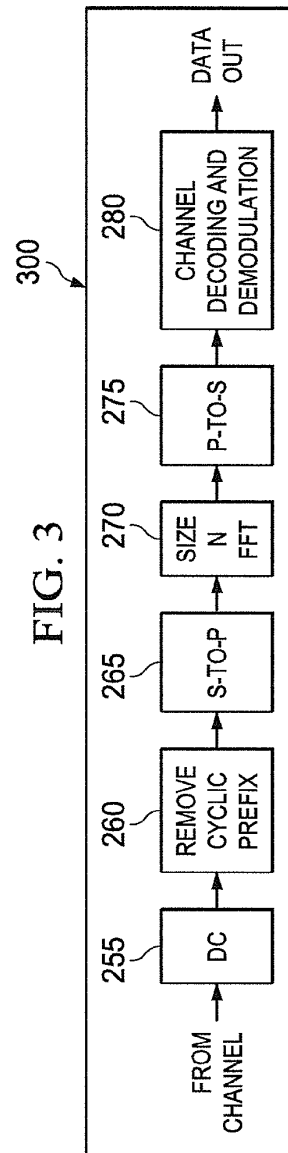
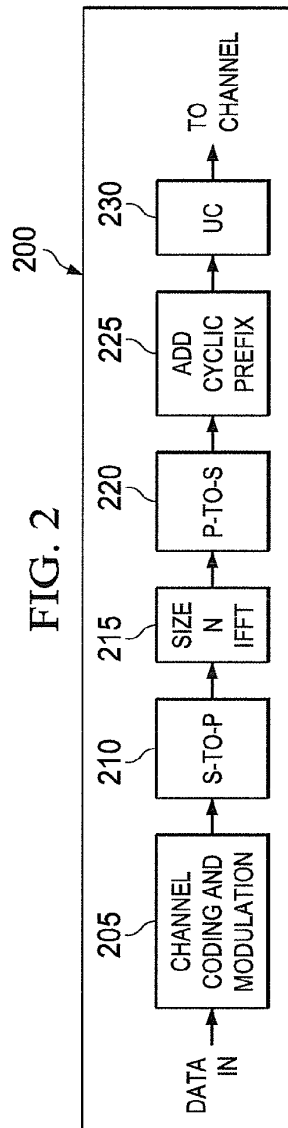


FIG. 1



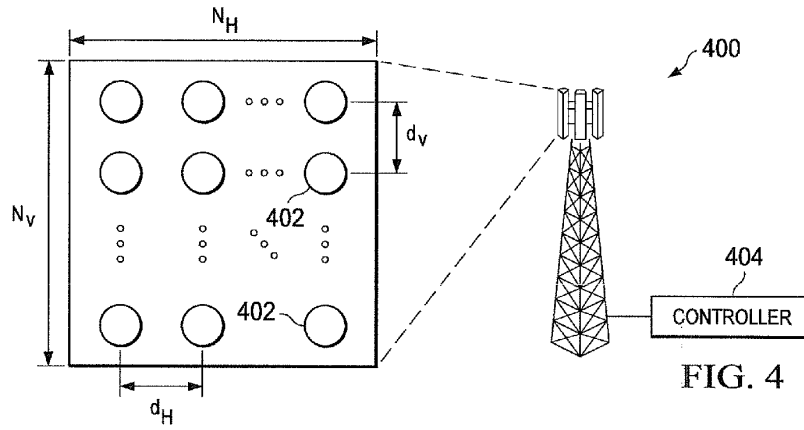


FIG. 4

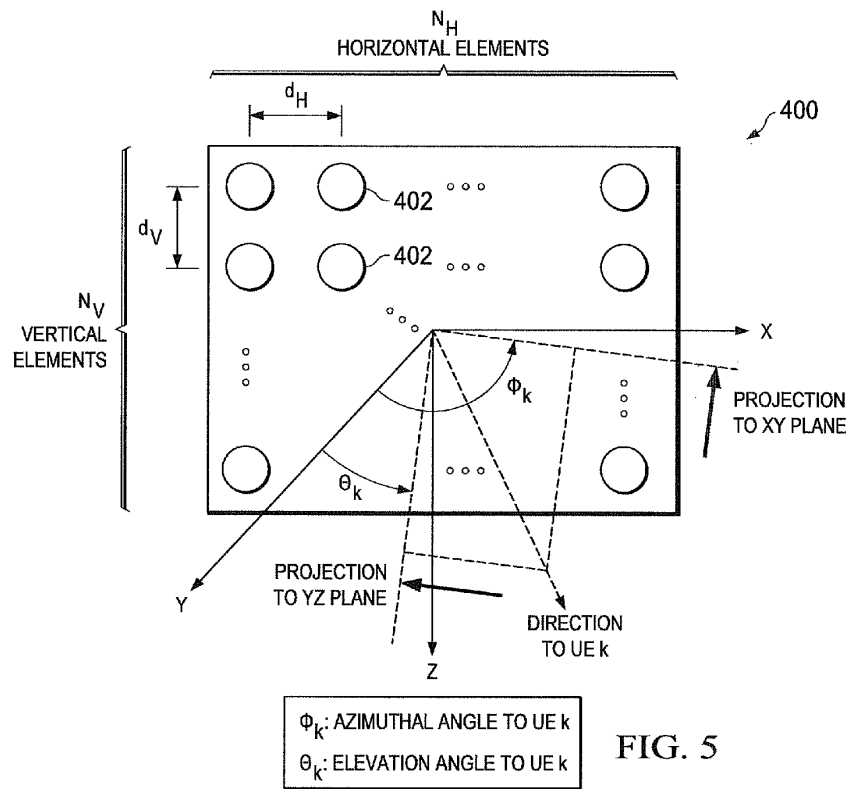


FIG. 5

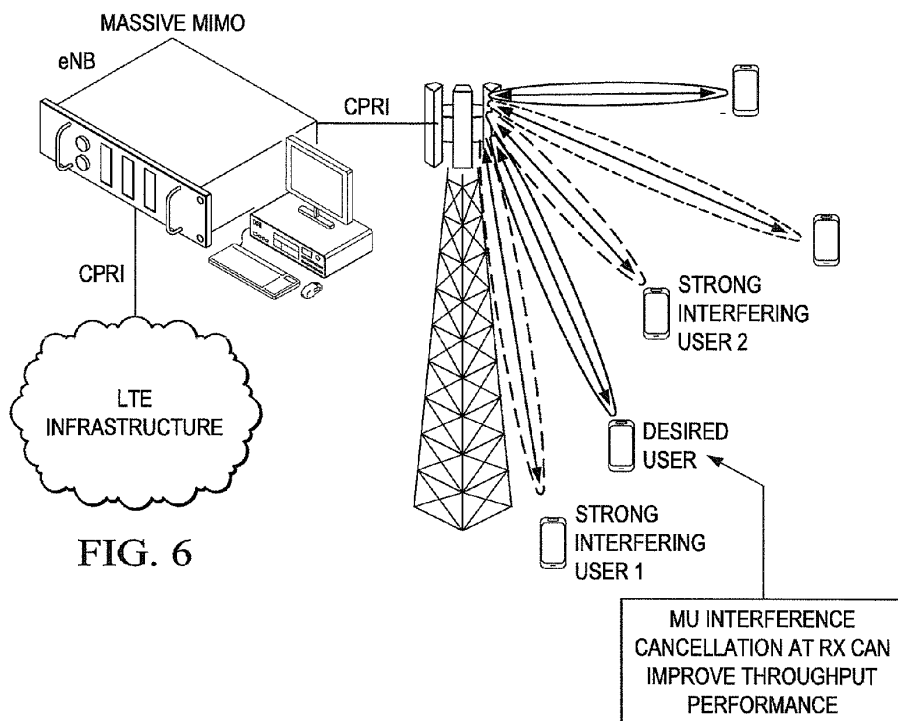


FIG. 6

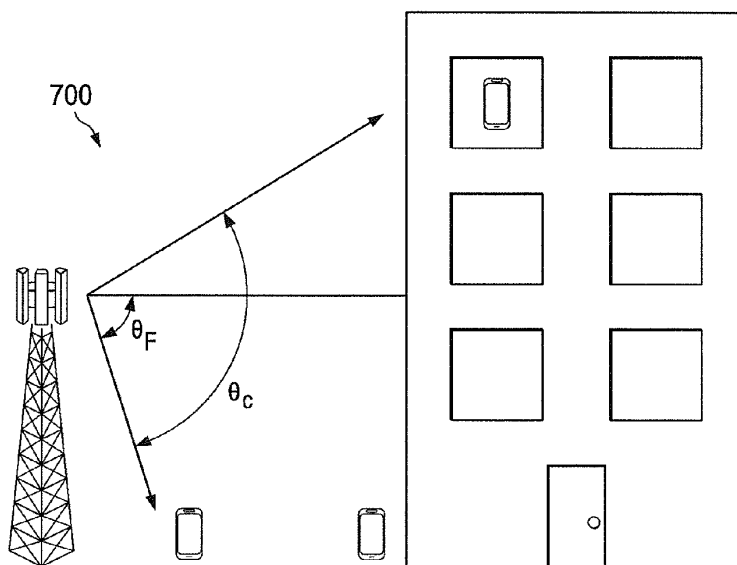


FIG. 7

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