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

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(57) **ABSTRACT**

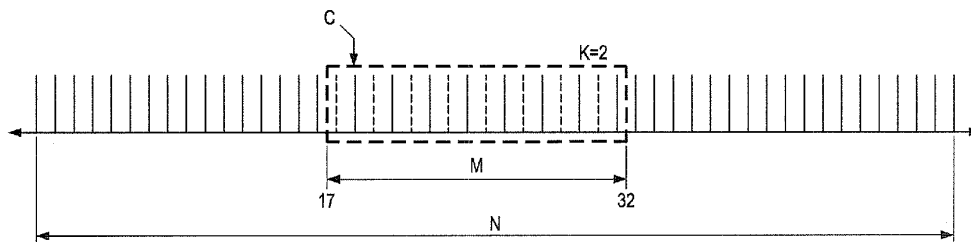
A user equipment (UE) in a wireless network having two-dimensional antenna systems performs a method of codebook sampling. The method includes receiving from an eNodeB (eNB) an indication of a restricted subset M of vertical precoding matrices, wherein M is less than a total number of vertical precoding 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.

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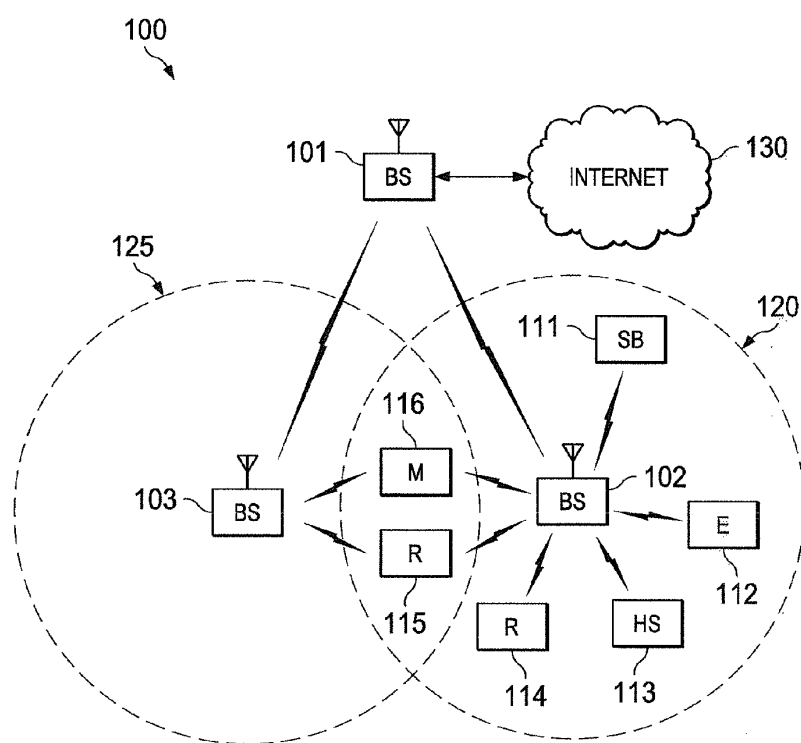
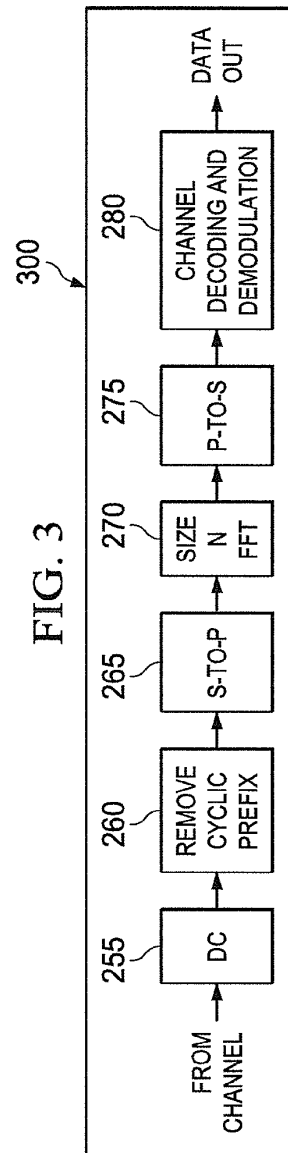
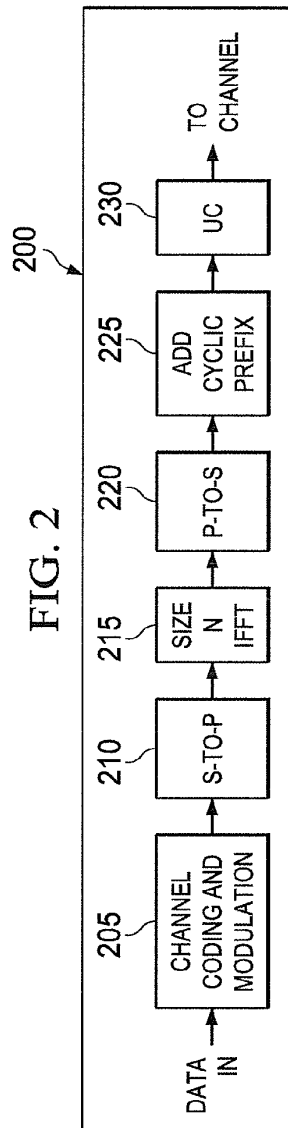


FIG. 1



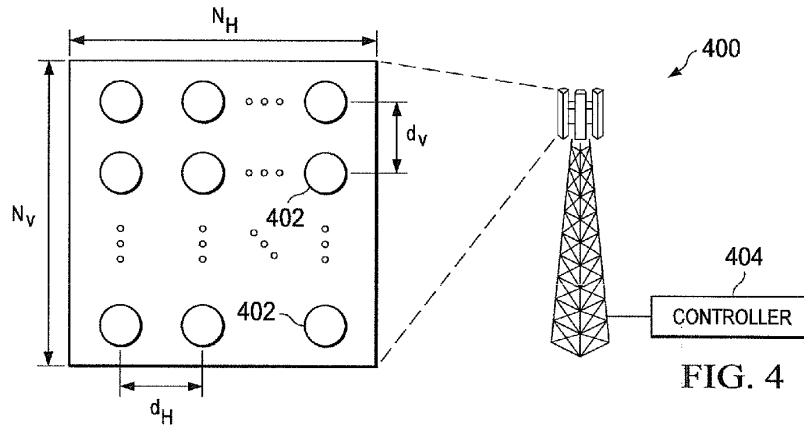


FIG. 4

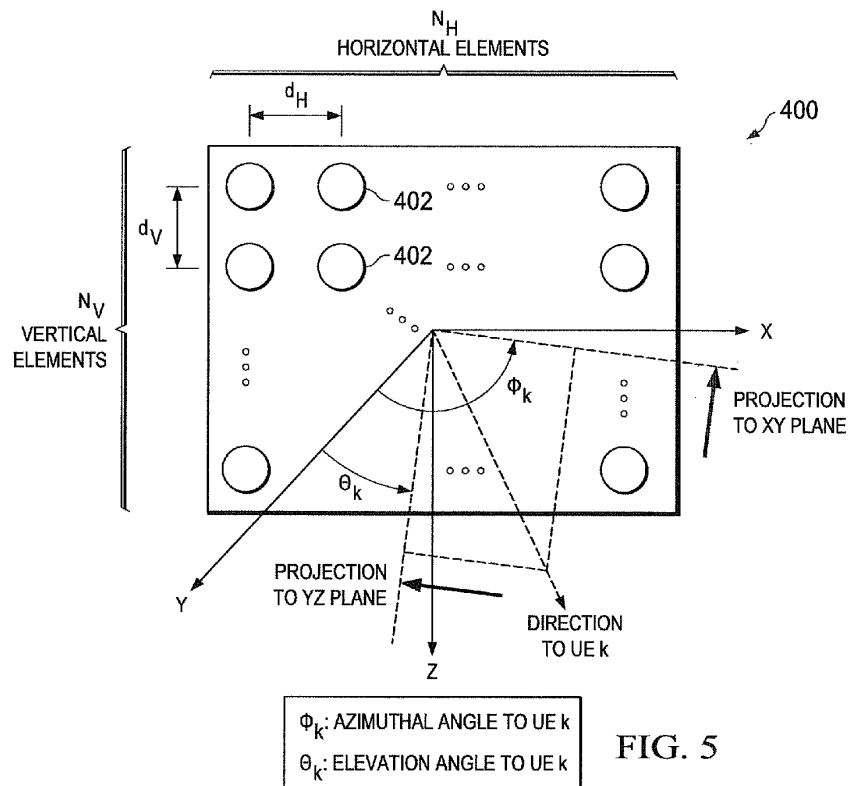


FIG. 5

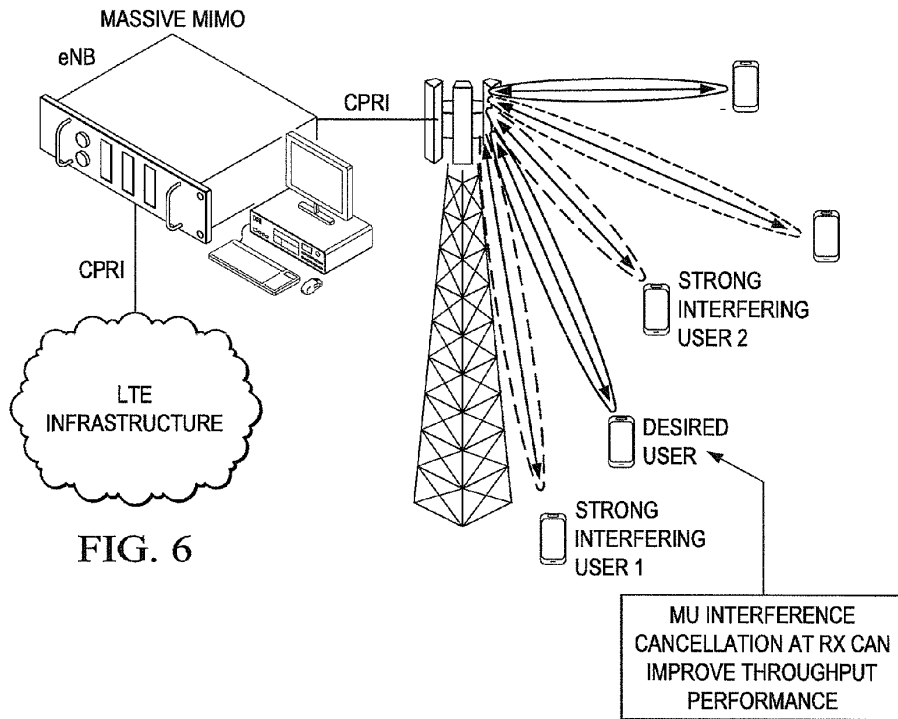


FIG. 6

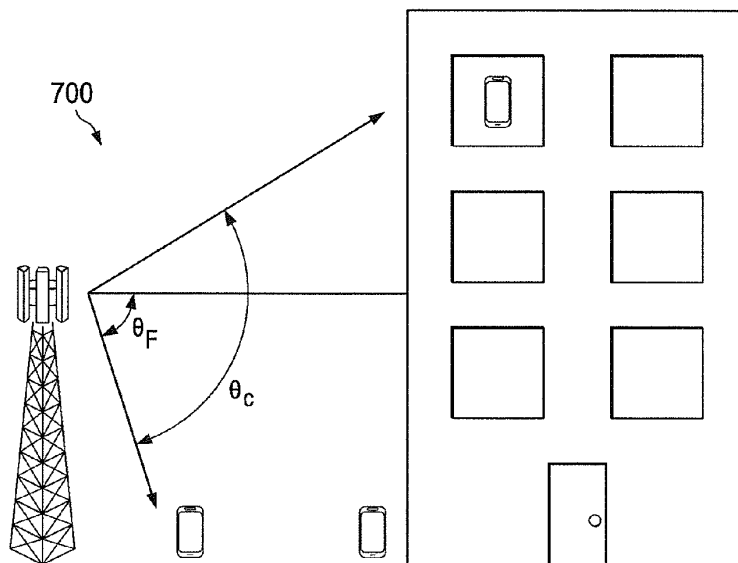


FIG. 7

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