(54) **CHANNEL ESTIMATION AND SPATIAL PROCESSING FOR TDD MIMO SYSTEMS**

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(57) **ABSTRACT**

Channel estimation and spatial processing for a TDD MIMO system. Calibration may be performed to account for differences in the responses of transmit/receive chains at the access point and user terminal. During normal operation, a MIMO pilot is transmitted on a first link and used to derive an estimate of the first link channel response, which is decomposed to obtain a diagonal matrix of singular values and a first unitary matrix containing both left eigenvectors of the first link and right eigenvectors of a second link. A steered reference is transmitted on the second link using the eigenvectors in the first unitary matrix, and is processed to obtain the diagonal matrix and a second unitary matrix containing both left eigenvectors of the second link and right eigenvectors of the first link. Each unitary matrix may be used to perform spatial processing for data transmission/reception via both links.
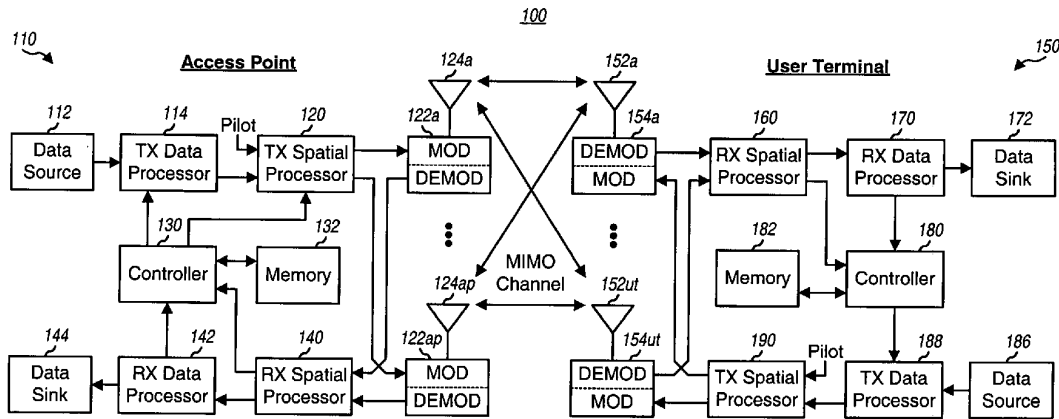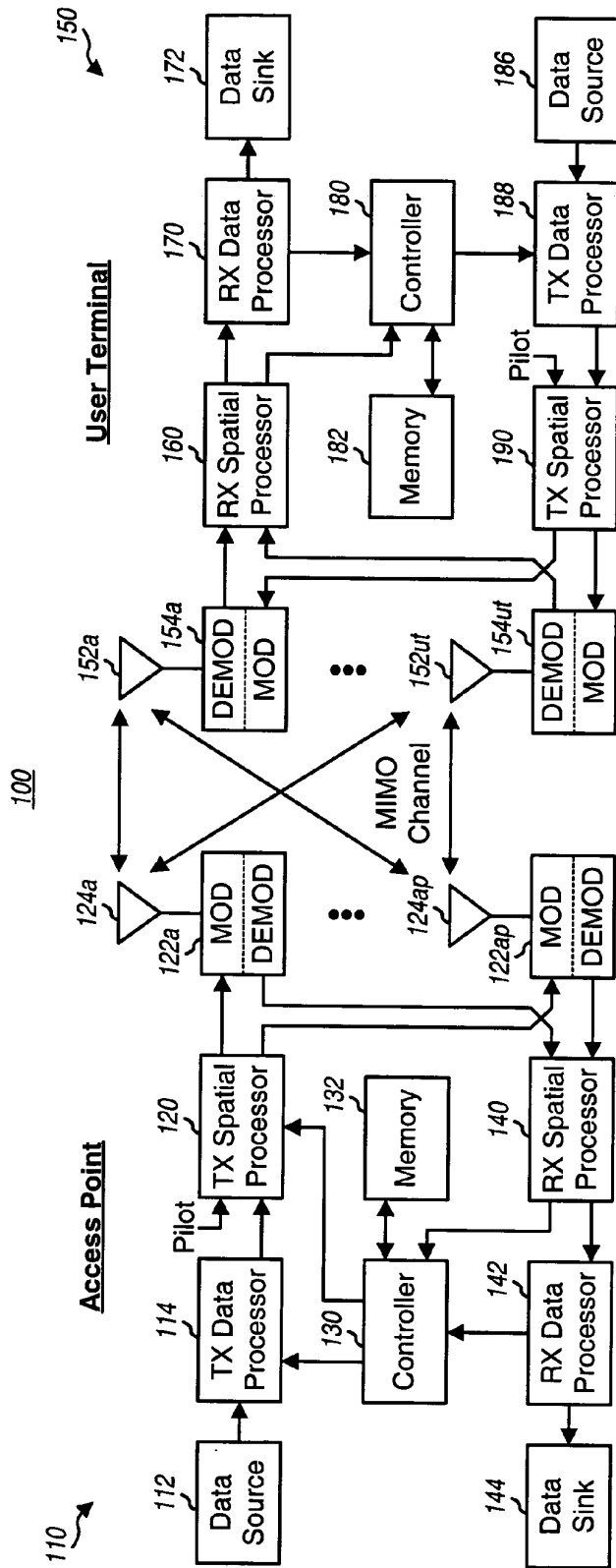
FIG. 1

FIG. 2A

FIG. 2B

FIG. 3

DOCKET ALARM
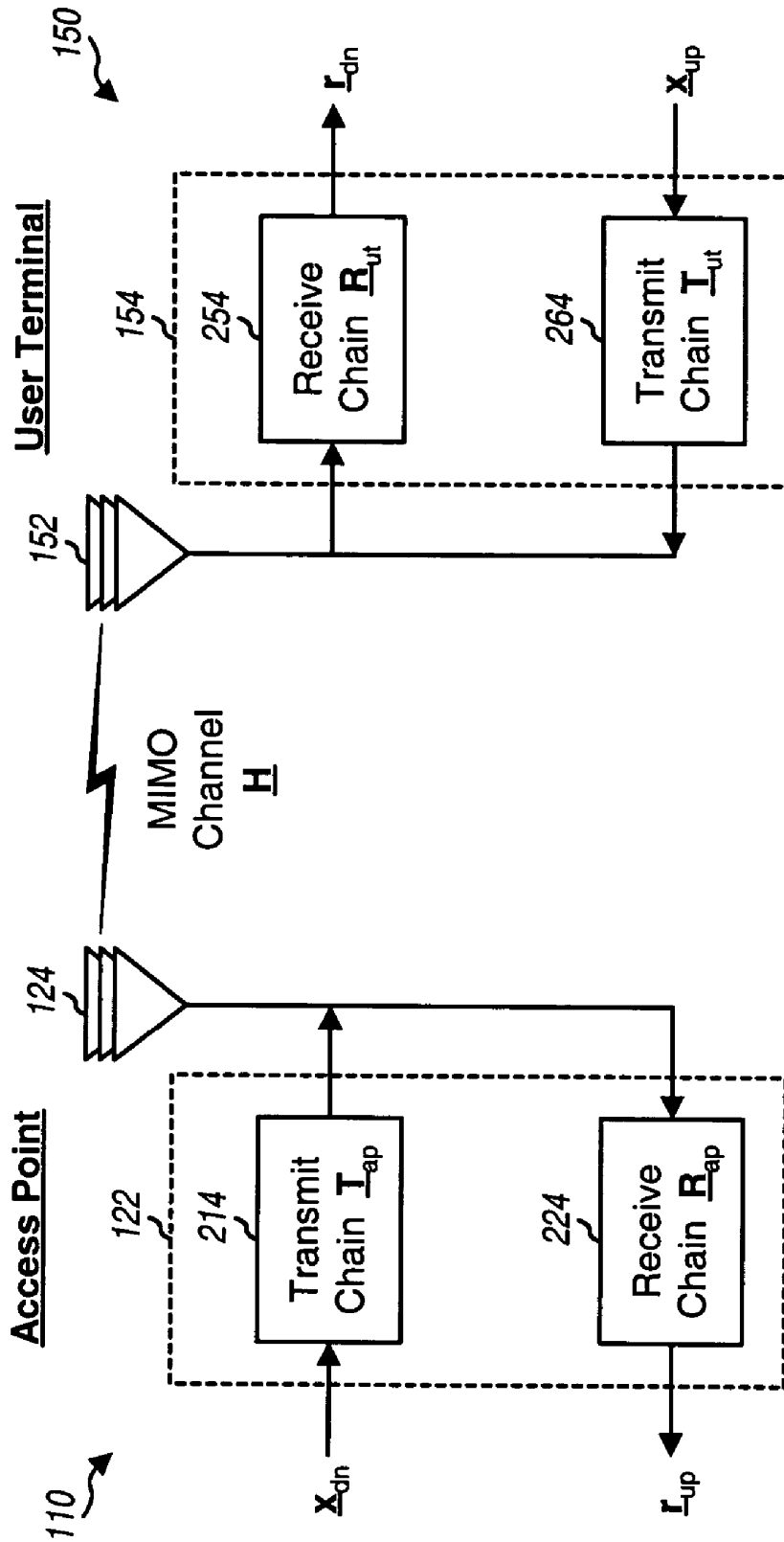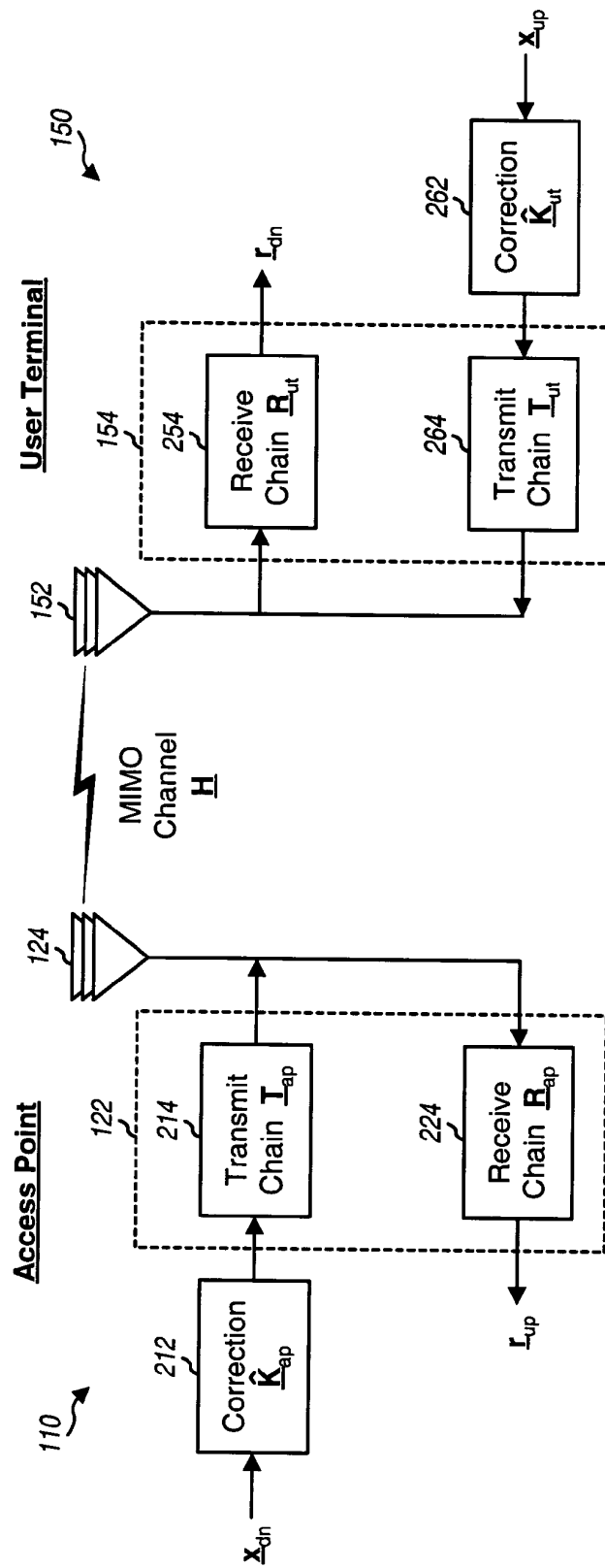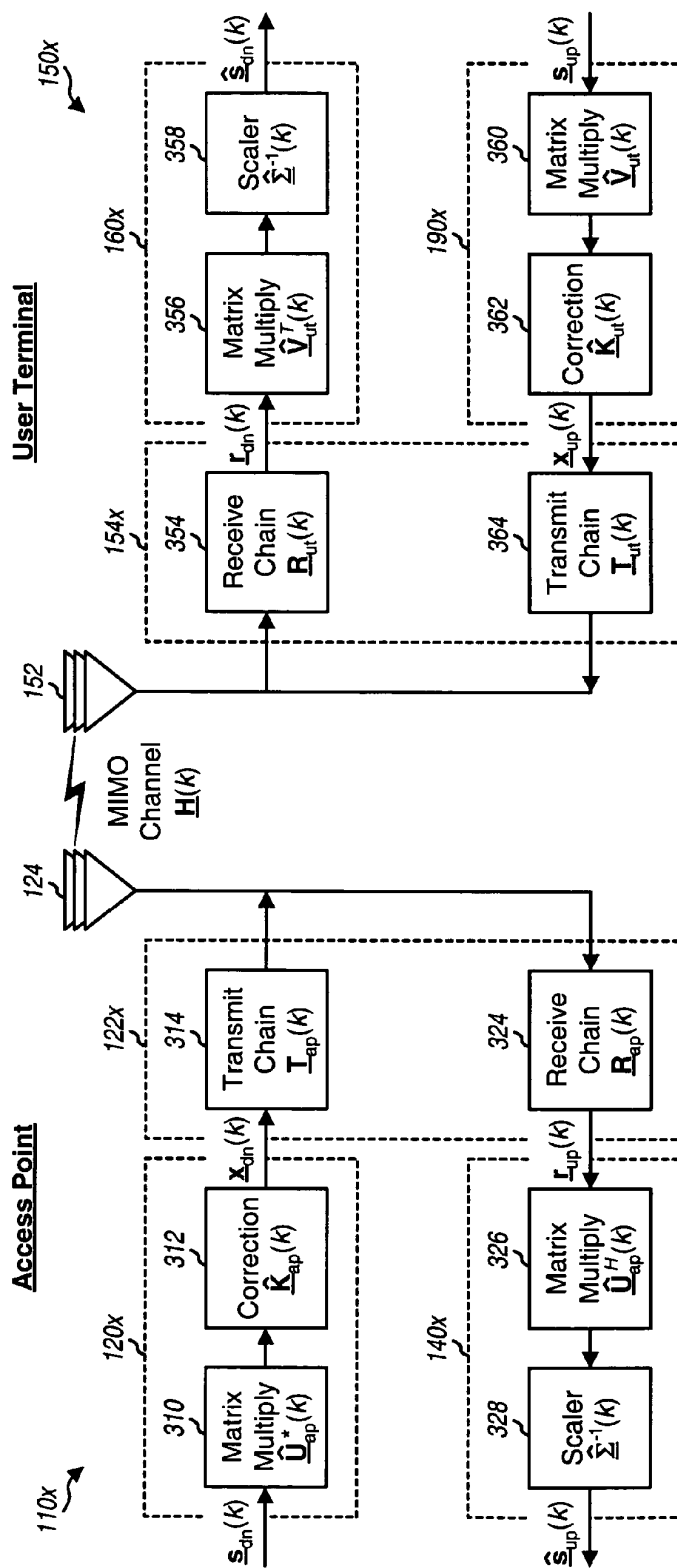
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