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(54) **PILOTS FOR MIMO COMMUNICATION SYSTEMS**

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(57) **ABSTRACT**

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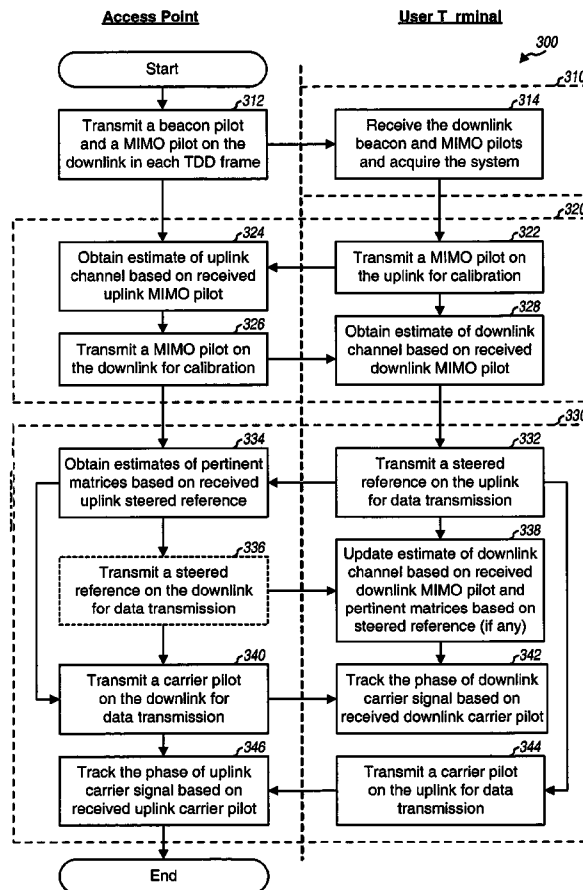
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Pilots suitable for use in MIMO systems and capable of supporting various functions are described. The various types of pilot include—a beacon pilot, a MIMO pilot, a steered reference or steered pilot, and a carrier pilot. The beacon pilot is transmitted from all transmit antennas and may be used for timing and frequency acquisition. The MIMO pilot is transmitted from all transmit antennas but is covered with different orthogonal codes assigned to the transmit antennas. The MIMO pilot may be used for channel estimation. The steered reference is transmitted on specific eigenmodes of a MIMO channel and is user terminal specific. The steered reference may be used for channel estimation. The carrier pilot may be transmitted on designated subbands/antennas and may be used for phase tracking of a carrier signal. Various pilot transmission schemes may be devised based on different combinations of these various types of pilot.



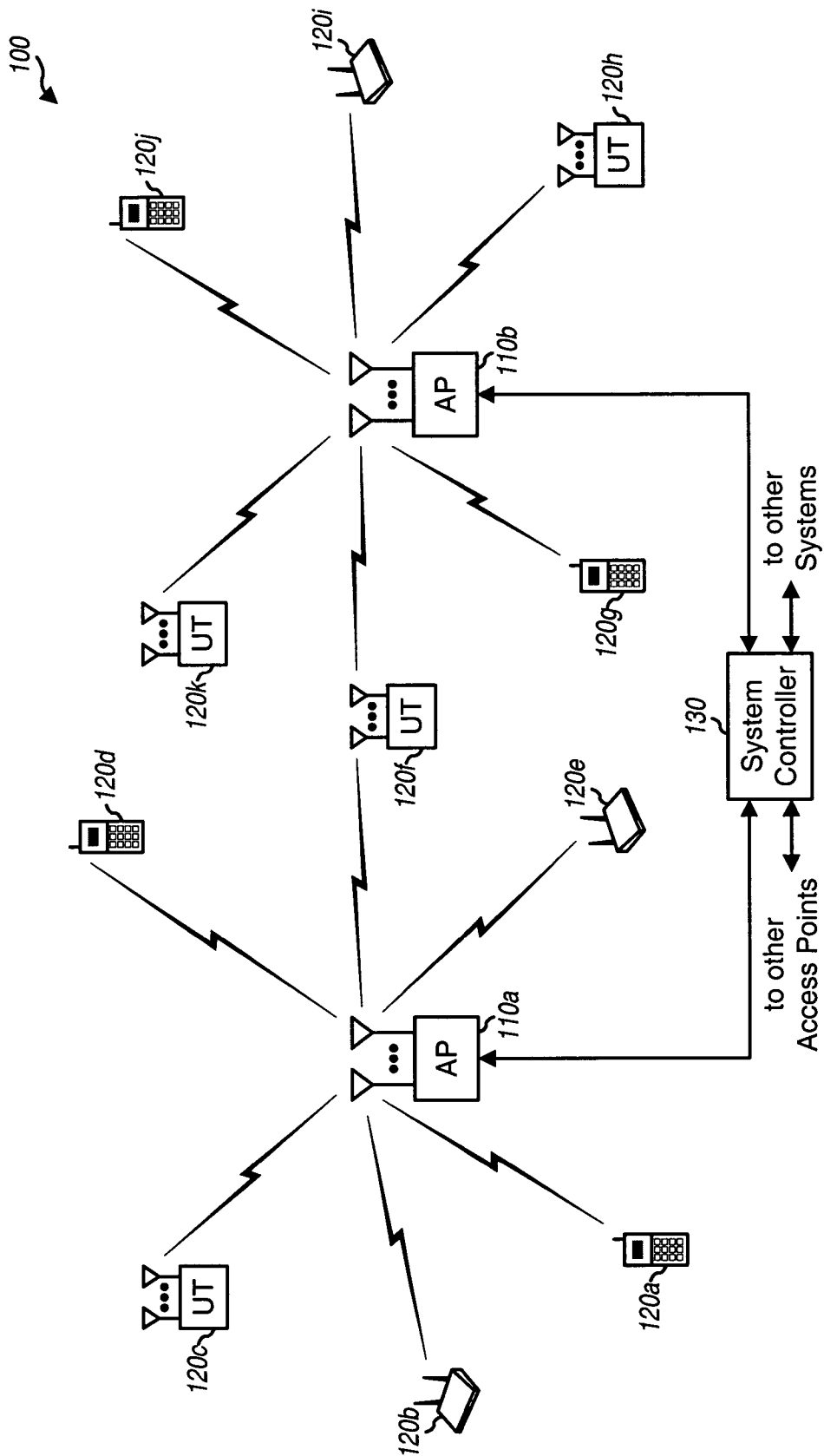


FIG. 1

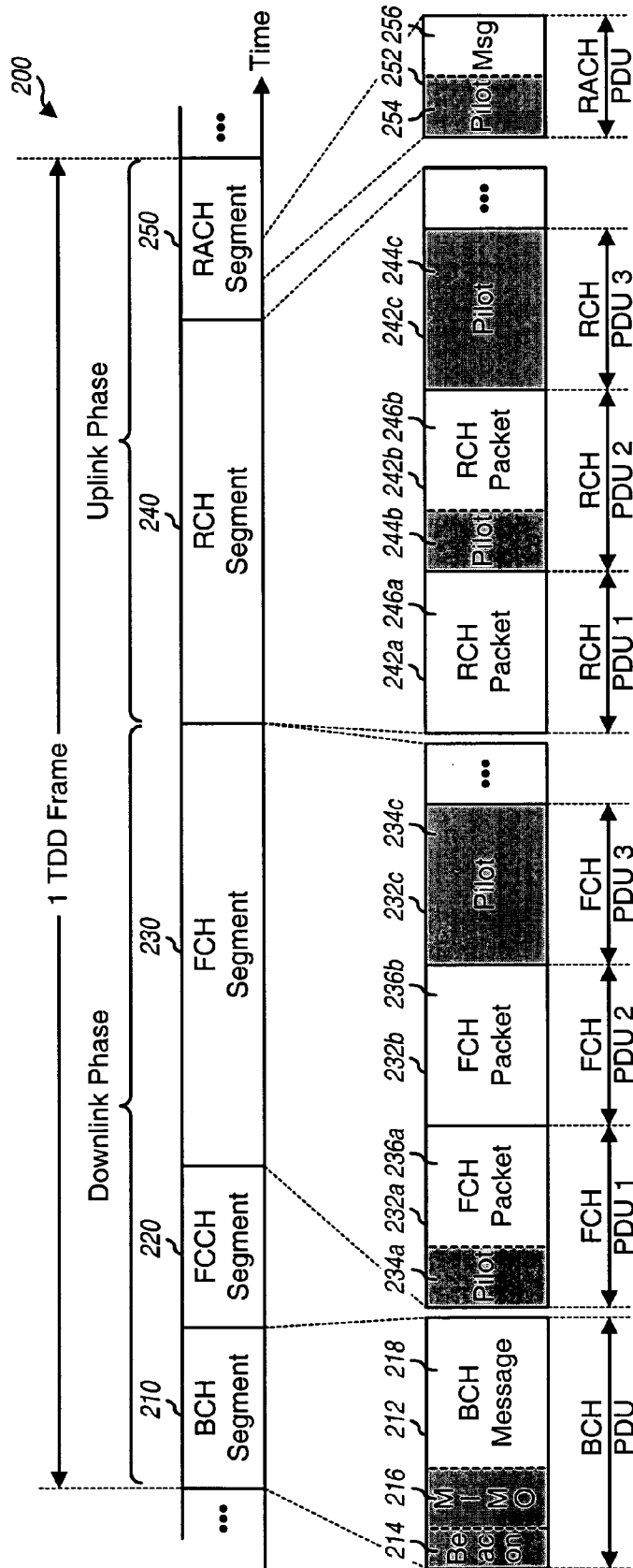


FIG. 2

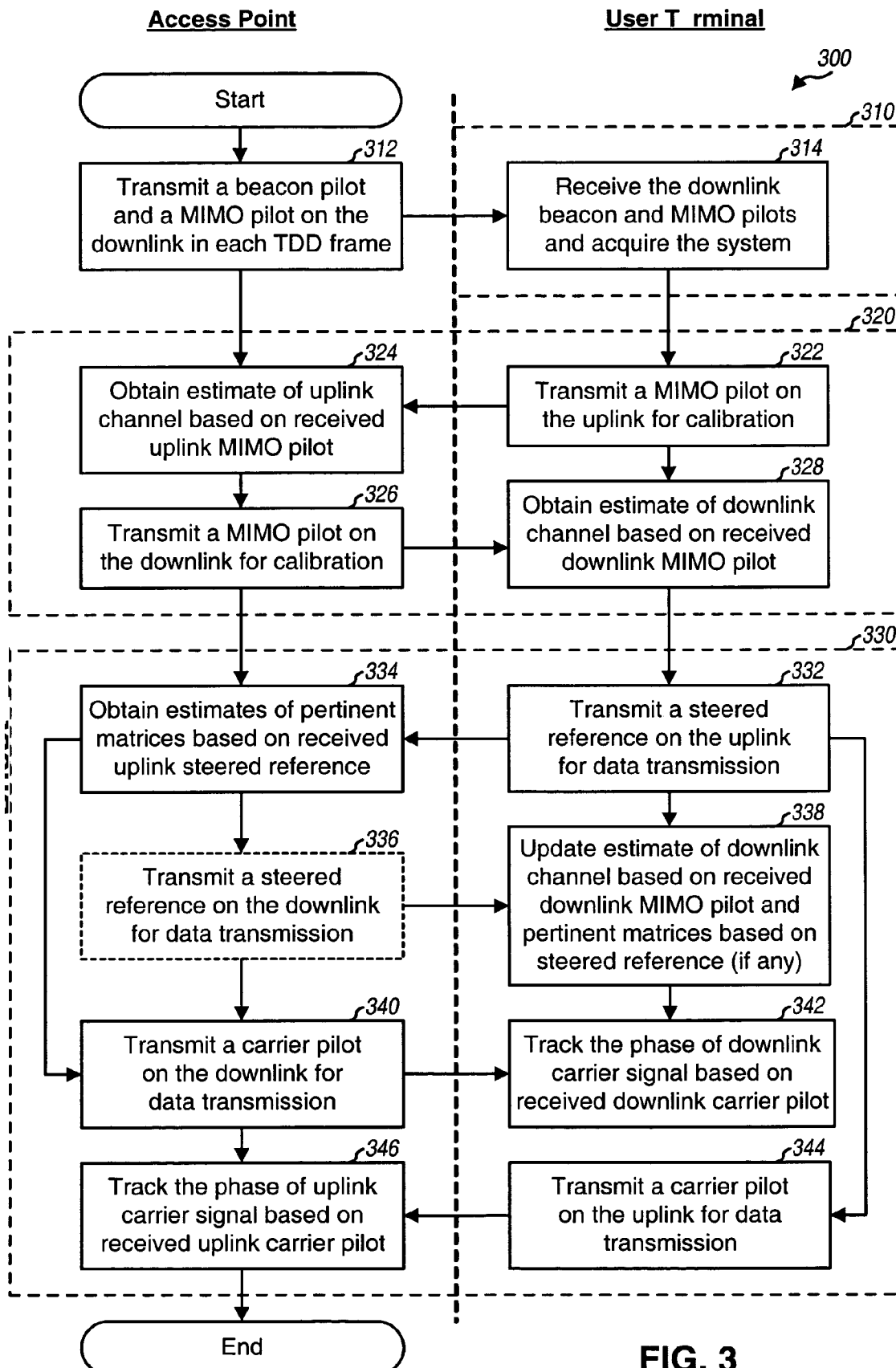


FIG. 3

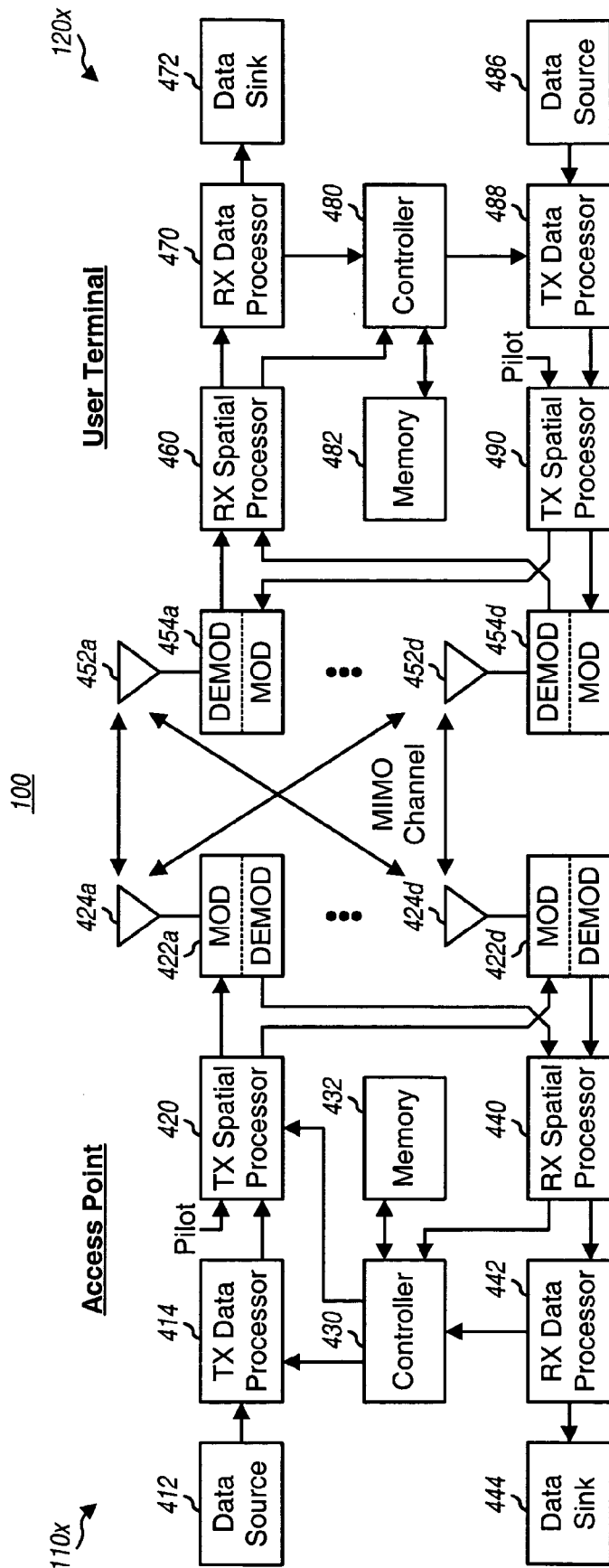


FIG. 4

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