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(54) **MILLIMETER WAVE (MMW) DOWNLINK
MULTIPLE INPUT MULTIPLE OUTPUT
(MIMO) AND CARRIER AGGREGATION
(CA) ARCHITECTURE**

(52) **U.S. Cl.**
CPC **H04B 7/0426** (2013.01)

(57) **ABSTRACT**

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A receive system for performing carrier aggregation (CA) and multiple input multiple output (MIMO) operation at millimeter wave (mmW) frequencies includes a phased array having a plurality of groupings, each grouping having a pair of sub array structures, each sub array structure having a mixer and a plurality of phased array elements, each phased array element associated with an antenna element, each phased array element having an amplifier (LNA) and a phase shift circuitry, and an amplifier array associated with each grouping, the amplifier array having two pairs of amplifiers, wherein a first amplifier of each pair is coupled to a first port and a second amplifier of each pair is coupled to a second port, the amplifier array configured to selectively route an output from any of the sub array structures of a grouping to either of the first and second ports.

1300

START

MEANS FOR RECEIVING AT LEAST A FIRST RADIO
FREQUENCY SIGNAL

1302

MEANS FOR DOWNCONVERTING THE FIRST RADIO
FREQUENCY SIGNAL TO ONE OR MORE
INTERMEDIATE FREQUENCY SIGNALS

1304

MEANS FOR ROUTING THE ONE OR MORE
INTERMEDIATE FREQUENCY SIGNALS TO ONE OR
MORE PORTS OF A PLURALITY OF PORTS

1306

END