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(54) Title: AN ARRAY ANTENNA AND A METHOD OF GENERATING CIRCULARLY POLARIZED BEAMS

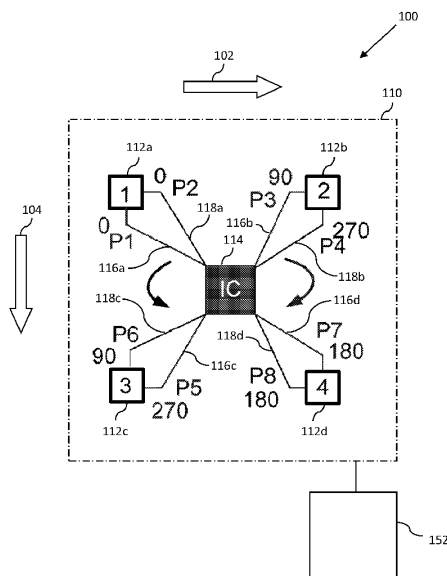


FIG. 1

(57) Abstract: There is provided an array antenna and a method of generating circularly polarized beams using an array antenna, the array antenna comprising, a plurality of sub-arrays, each of the plurality of sub-arrays comprising, a plurality of antenna elements, each antenna element comprising a first feeding port and a second feeding port; a physical integrated circuit (IC) comprising a plurality of first and second output channels; a first feeding network comprising a plurality of first feed lines communicatively coupling each of the first output channels of the physical IC to a first feeding port of each of the plurality of antenna elements; and a second feeding network comprising a plurality of second feed lines communicatively coupling each of the second output channels of the physical IC to a second feeding port of each of the plurality of antenna elements; wherein the physical IC is configured to excite the plurality of antenna elements via the first feeding network to generate a first circularly polarized (CP) beam and to excite the plurality of antenna elements via the second feeding network to generate a second CP beam, and wherein the respective first CP beams from each of the plurality of sub-arrays form a first combined CP beam; and the respective second CP beams from each of the plurality of sub-arrays form a second combined CP beam.

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