ANTENNA ARRAY WITH INDEPENDENTLY ROTATED RADIATING ELEMENTS

ABSTRACT

A multi-layer printed circuit board (PCB) comprising a beam-forming network (BFN) and a plurality of antenna cells. The BFN is positioned in a coordinate system of the multi-layered PCB. The BFN comprises a plurality of beam forming stages. A given beam forming stage of the plurality of beamforming stages has the same geometric shape as another beam forming stage of the plurality of beam forming stages. The plurality of antenna cells is positioned in the coordinate system of the multi-layered PCB to form a regular tiling pattern. Each of the plurality of antenna cells is interconnected with the BFN through a via extending between the BFN and a respective antenna cell. Each of the plurality of antenna cells has a predetermined angle of rotation defined in the coordinate system. At least two of the plurality of antenna cells have different predetermined angles of rotation.

[Fig. 1]