

Inverse Cosecant Square Beam Antenna Pattern by Unequal Power Divider

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Abstract: For many base station antenna systems, inverse cosecant square beam pattern is required for near range for range power control. There are various ways in designing this kind of beam pattern. This research topic is a part of the four beams pattern with inverse csc^2 capability. Fig.1 shows the prototype of 4×4 antenna elements array with four beams pattern capability. Fig2 shows the back of the array. A 4 to 1 Wilkinson power divider is applied to vertical BFN. In order to increase the directivity of the array, 4×8 antenna elements are arrayed for frequency between 1.7GHz to 2.2GHz. The vertical 8 to 1 BFN is unequal weighting 8 to 1 power divider as shown in Fig.3. The pattern simulation is shown in Fig.4 for frequency at 1.95GHz. The design and test results will be discussed during the presentation.

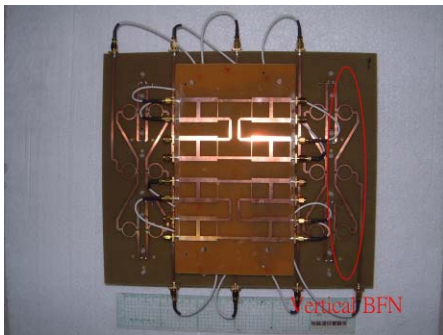


Fig1 Front of array

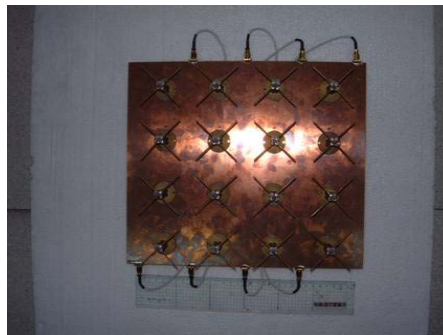


Fig2 Back of array

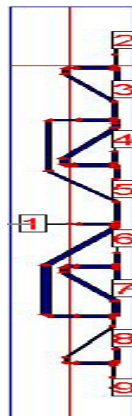


Fig 3 8 to 1 UPD of circuit

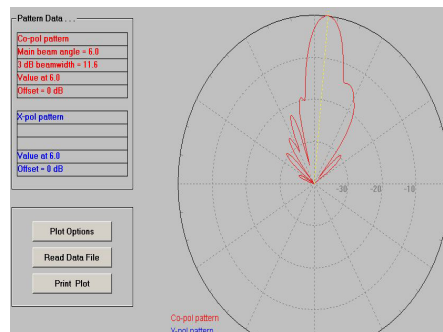


Fig 4 1.95GHz for polar pattern