ABSTARCT

Use of reflector has the function to change the radiation pattern of the antenna and beamwidth so that can increase gain of antenna. The amount of gain change produced by the addition of a reflector can be influenced by several things, among them is to set the angle of reflector (α), set the distance between driven element and reflector (space), and change the long dimension of the reflector (h). The resulting radiation pattern of biquad antenna is bidirectional, signal transmitted in both directions with the same magnitude. With the addition of a reflector, will limit the radiation pattern in order not to widen backwards and emit force will be strengthened in the opposite direction, so it can be seen clearly how the transmit antenna pattern changes before and after the addition of reflector.

Process begins with design and simulation biquad antenna with reflector using CST Microwave Studio 2010. The next process is realization, it is used to verify the data correctness that obtained from simulation. And ends with the analysis of how the effects of changes of α, space and h to VSWR, gain and beam pattern of the transmit antenna. The magnitude that observed is α 30^o - 180^o (10^o intervals), spacing 0.25 λ - 1.5 λ (0.25 λ interval) and taken h = (1.2, 1.35, and 1.5) x Length of the Antenna.

Obtained from the analysis, when the distance between driven element and reflector (space) more distant, lead growing of unwanted radiation number in the beam pattern, and will increasingly lose directivities characteristics. When α becomes smaller, the backlobe becomes smaller too and mainlobe beam will widen, leading to decreased antenna directivity, so antenna gain gradually come down. Sizes (h) cause a relatively small increase of gain (1% to 4%). Sizes (h) will not give an effect to beamwidth and directivity of the antenna.

Keyword: *Bidirectional, Beamwidth, Gain, Backlobe, Mainlobe.*