On Radiation Characteristics of a Plasma Triangular Monopole Antenna

A plasma triangular monopole antenna operating in the VHF band (30-300 MHz) is studied in this paper. By using HFSS simulator, the relationship between the radiation characteristics of plasma antenna and plasma parameters is revealed. Also the effect of bend angle of structure is simulated. The simulation results indicate that, when plasma frequency is sufficiently higher than operating frequency and the collision frequency is corresponding low, the plasma antenna can operate with characteristics similar to a metal antenna. The peak gain of plasma antenna is lower than metal one, on operating bend angle range.

Keywords: Plasma antenna, radiation pattern, triangular monopole, plasma frequency, collision frequency.

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