Comparative Analysis of Plasma Antenna with Metal Antenna

Abstract

This paper is designed to prove that Monopole Plasma Antenna is better than that of traditional Metal Antenna in terms of bandwidth, directivity, gain, radiation efficiency, VSWR and return losses. Mathematical model (Drude Lorentz Model) of plasma antenna and traditional metal antennas are analyzed at two different resonant frequencies of 1 GHz and 2.4 GHz by using the simulation software Computer Simulation Technology CST-Microwave Studio Suit 2010 which is commercially available. Several parametric analyses have been performed to analyze bandwidth, directivity, higher gain, radiation efficiency, and VSWR and insertion losses of both the Plasma and Metal monopole antenna. After delicate analysis, it is found that monopole plasma antenna is much better than that of traditional monopole metal antenna in terms of their parameters including bandwidth, directivity, higher gain, radiation efficiency, and VSWR and insertion losses.

References

**Index Terms**

Computer Science  
Wireless

**Keywords**

Bandwidth, Directivity, Gain, Radiation Efficiency, VSWR and Insertion Losses.