

Clarify and Implementation of Carbon Nano-Materials Based Circular Microstrip Patch Antennas

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ABSTRACT

In this chapter circular shape microstrip patch antennas are desing modeling and simulated characterization on an antenna. Carbon nanotube (CNT), Metallic Carbon Nanotube (MCNT) are considered as the patch materials. The electromagnetic radiating patch is totally composed of nano thickness (nano meter) films. The carbon nano tube patch antenna is better than traditional patch antenna for return loss, gain voltage and radiation pattern.

KEYWORDS: *Metallic CNT, Patch antenna, Nano-Technology, Semiconducting CNT*

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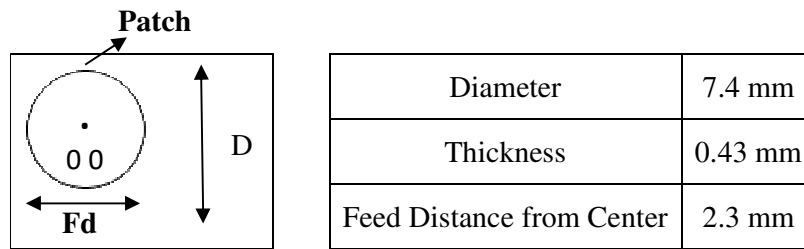
INTRODUCTION

At this moment the circular microstrip antennas has been widely used in microwave frequency for broad extend of implementation, such as armed forces, manufacturing and wireless communication system. At present time carbon nano-materials have been grow to agree the fabrication of circular microstrip patch antennas. In the arrangement of circular microstrip patch antenna one side of dielectric substrate acts as a radiating patch and other side of underlayer acts as ground plane. The circular microstrip antennas fluctuate in impedance hanging on the plangency frequency, polarity, prototype and explicit patch composition.

THEORY

The circular microstrip patch antennas is based on transmission line model and method of moments. Carbon nanotube can be semiconducting or metallic depending on the helicity and chiral indices. The carbon nanotube are very prominent in the field of nano-electronics. The circular microstrip patch

radiator acts as a resonator having transverse field varing along of the radiator. This antenna at resonant frequency of 18.95 GHz. Perfomence for semi conducting patch antenna is poor and metallic patch antenna is average. Today most of the electronic devices can be fabricated in combination with Graphene. Graphene transistors are next the remarkable achievement in the field of electronic nano-devices. This chapter are being published to observe the characteristics of circular microstrip patch antenna based on CNT-Polymers in different electronic and wireless applications. This patch antenna can be printed in arrays on fabrics and considerable progress is already going in this application. So carbon nano-materials can be the next change in the coming scenario to replace the metal conductors and silical semiconducting devices. In this chapter the recommended antenna layout is repeated by assessing the return loss, antenna and radiation abundance.

GEOMETRY OF CIRCULAR MICROSTRIP PATCH ANTENNA

Above given that Dimension of the circular microstrip patch antenna. Carbon nano-tube patch antenna has been observed to provide good result for return loss. Resonant mode at a frequency of 18.95 GHz has been observed.

CONCLUSION

In this chapter the circular microstrip patch antenna comparative simulation characterization of nano thickness radiating film is carried out. The nano film shows excellent performance in terms of bandwidth. The primary effect of nano film radiating patch on the circular microstrip antenna resonant frequency and bandwidth. This antennas structure with hybrid coupler feeding technique can be designed.

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