Abstract

A new approach to designing a compact size helical loaded cavity backed antenna from helical resonator filter is proposed. The 3-D modeling and simulation is done for three models by using the SINGULA simulation software by Integrated Engineering Software. The fabrication is done in aluminum cavity and copper helix. The measurements were done for return loss, directivity and gain using RF vector network analyzer, Agilent N9923A mode. The helix is
enclosed in a highly conductive shield of Cylindrical Cavity. It provides wide bandwidth and circular polarization. Its volume is 10 times smaller than conventional helical antenna in axial mode operation. According to the classical design data for axial mode operation, the ratio of helix circumference to wavelength is 0.8 to 1.2. In this paper the ratio is reduced to 0.2. The same size helical antenna radiate in normal mode without cavity.

Reference

Axial Mode Helical Antenna using Cylindrical Cavity

http://www.waset.org/ijecse.
Index Terms

Computer Science  Wireless

Key words

Helical antenna
normal mode
axial mode
helical resonator
quarter-wave transformer