

**YIG Thick Film as Substrate Overlay for
Bandwidth Enhancement of Microstrip
Patch Antenna**

MICANS INFOTECH

ABSTRACT

Research on Microstrip patch antenna (MPA) has been growing in the past few decades due to its planar profile and easy fabrication. Its simplicity of structure which includes a conductive patch, a dielectric substrate, a ground plane and a microstrip feeder is making it more popular for integration in devices which are more focusing on miniaturization and flexibility. Ferrite substrates are known to be able to help overcome this issue, but the properties of bulk ferrites are difficult to control. This work aims to solve this problem by using thick film technology which utilizes screen printing method to include ferrite thick film in the MPA structure as substrate overlay to help enhance the performance of MPA. Results showed that the thick film showed moderate permittivity and permeability, which is suitable for MPA fabrication.

EXISTING SYSTEM

- It is difficult to control the parameters of the MPA if using conventional conductive thick film pastes alone such as silver paste or copper paste.
- Furthermore, the use of copper paste is not preferable due to its oxidization in air at room temperature.
- Ferrite substrates can help to improve the performance of MPA due to its moderately high permittivity and permeability, and also the anisotropic behavior of the materials.

PROPOSED SYSTEM

- A novel ferrite thick film paste using nanosized ferrite powder and linseed oil based organic vehicle.
- By utilizing thick film technology, microstrip patch antenna has been able to fabricate with improved performance using common FR4 substrate.
- Thick film technology also contributes in terms of ease of fabrication, with ability to screen print prepared thick film paste on any desired substrate.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS:

- Processor - intel core i3
- RAM - 2GB
- Hard Disk - 20 GB

SOFTWARE REQUIREMENTS:

- Ansoft HFSS(High Frequency Structure Stimulator)

REFERENCE

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