RESEARCH ARTICLE OPEN ACCESS

Improving the Performance of Multi Bands Patch Antenna by Proposing Shaped G Antenna Using Fractal Engineering

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ABSTRAC

Due to the rapid development of communication technologies that deal with various telecommunication systems such as cellular, global positioning, and space communication systems. Since each of these systems operates at different frequency bands and each needs a particular antenna, which leads to large size and high cost, the design of antennas that operate at more than one frequency domain were studied at the same time.

The design of the SIRPENSKI multi-band tactical patch antenna has been proposed for WLAN wireless applications with a G-shaped patch within each triangle of the Sirepinski's crisp antenna.

The regular distribution of the radiation bursts improves the radiation field of the antenna compared to the irregular distribution of the openings. The addition of the G-spot in the Sirpinski antenna increases the gain, but at the same time increases the value of the side flaps. Regular distribution of radiological openings is more effective than irregular distribution. The G-holes produce a better radiation field than the openings without a patch. The proposed antenna achieves stability in performance

Keywords:-*Antena, Fractal,*

I. INTRODUCTION

The radiator antenna consists of a metal plate of copper or radiant gold installed on one side of a dielectric substrate layer and the radiator is fed through a line that is normally extended within the base layer. The lightweight, inexpensive antenna also supports both linear and circular It can be easily integrated with micro-integrated circuits, multi-frequency operation and mechanical rigidity. This type of antennas is relatively new and is still being studied and updated as a result of its many uses in many practical applications. The antenna is characterized by being lightweight, N supports two types of polarization (linear and circular) and the ability to operate on multiple frequency fields, such as the antenna can be easily integrated with micro-integrated circuits.

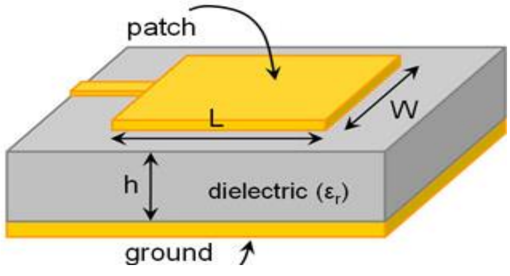


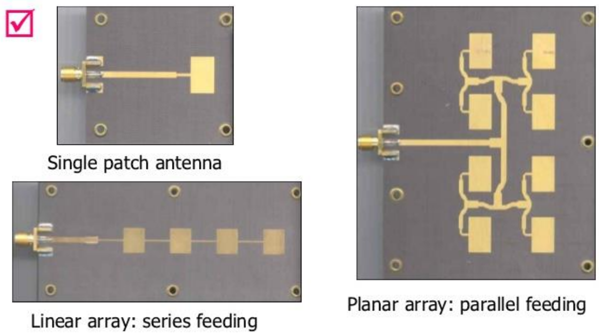
Figure 1 patch antenna [12]

II. TECHNIQUES FOR FEEDING THE ANTENNA

Feeding techniques are divided into two types:

- Connected feed: The radio signal is fed directly to the radioactive patch using a connecting element such as the microstrip.

- Non-connected feeding: An electromagnetic field is applied to transfer energy between the microstrip line and the radioactive patch.



III. ANTENNA

The following chart shows the IFAD scheme for the work mechanism [1].

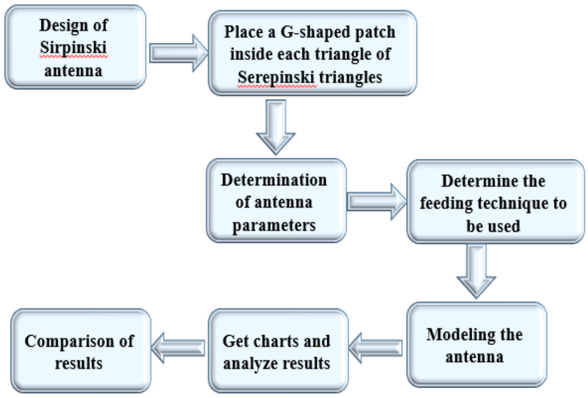


Figure 3 Fund of the Action Plan

The following figure shows the stages of the design of the developed antenna

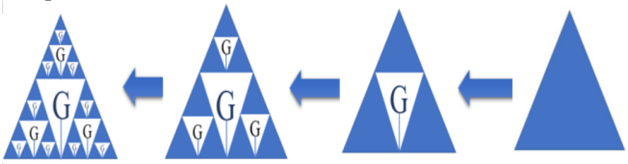


Figure 4 Phases of the design of the landscape

IV. SIMULATION AND PERFORMANCE ENVIRONMENT MEASURES

The Simulator is a high frequency structural simulator (HFSS), a simulator that enables the design of many types of antennas and tests. It is one of the most important programs used in the analysis and design of high frequency systems.

V. EXPERIMENTAL RESULTS

Scenario 1: Simulation of the algorithm for microbial line technology

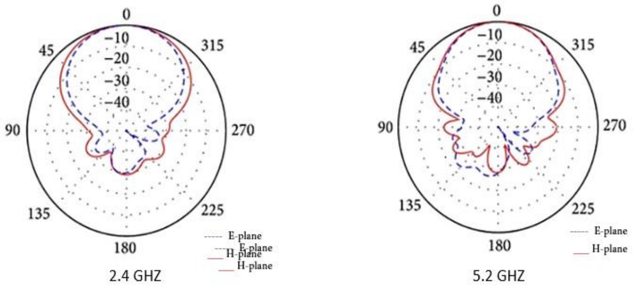


Figure 5 Planning Radiation scheme

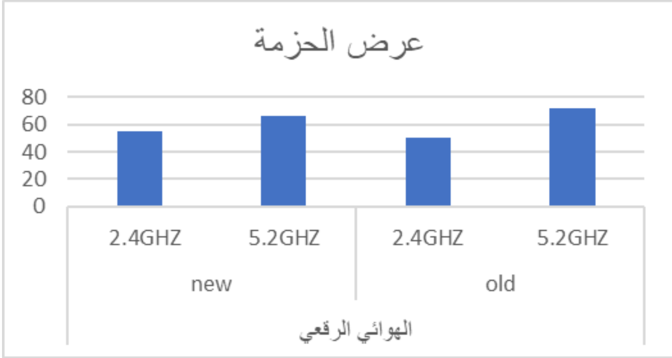


Figure 6 bandwidth for microbial line technology

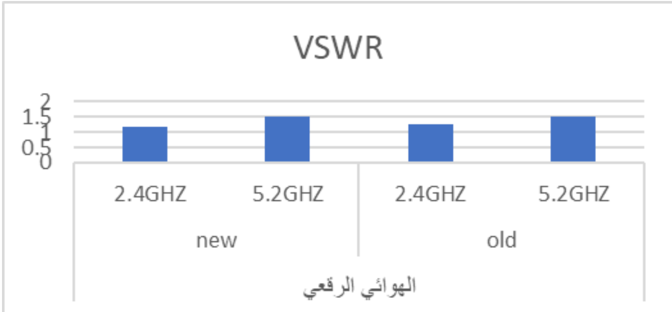


Figure 7 VSWR for microbial line technology

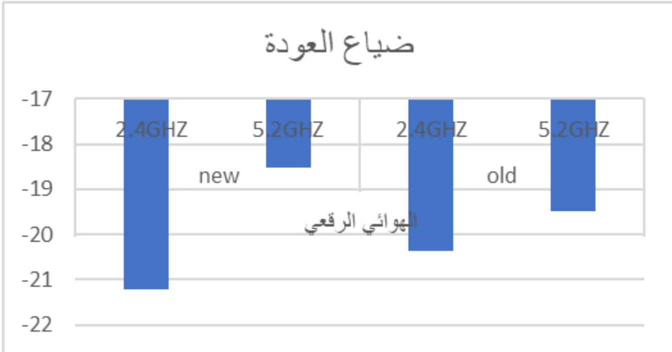


Figure 8 Lost back for microbial line technology

Scenario 2: Simulation of the algorithm for adjacent pairing technique

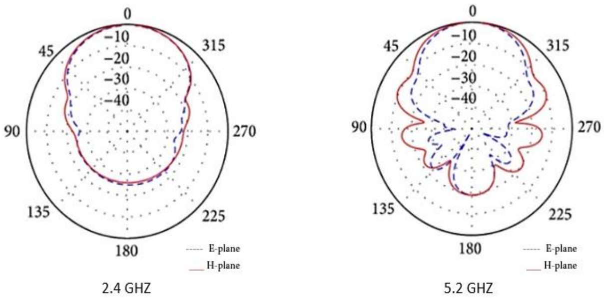


FIGURE 9 PLANNING RADIATION SCHEME

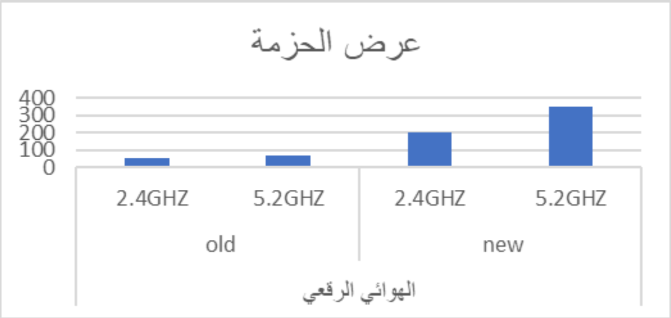


Figure 10 bandwidth for adjacent pairing technique

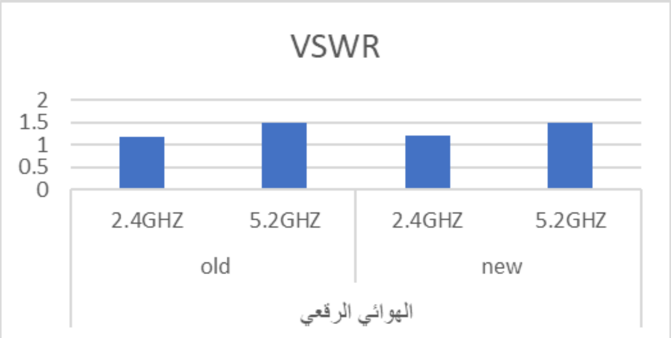


Figure 11 VSWR for adjacent pairing technique

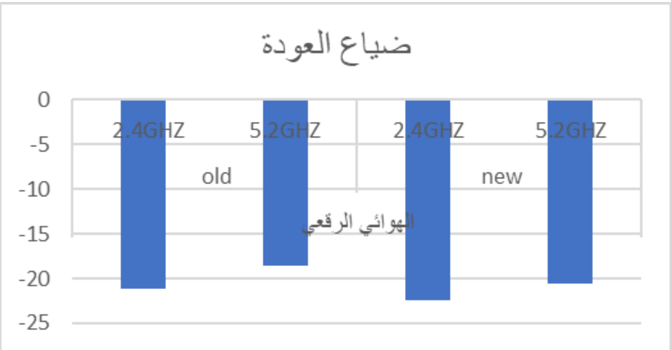


Figure 12 Lost back for adjacent pairing technique

VI. CONCLUSIONS

Adding a G-shaped patch in the Sirpinski antenna increases the gain, but at the same time increases the value of the side flaps. Regular distribution of radiological openings is more effective than irregular distribution. The G-holes produce a better radiation field than the openings without a patch. The proposed antenna achieves stability in performance

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