A MINIATURE 2.4/5 GHz DUAL BAND BANDPASS HAIRPIN FILTER USING STEPPED IMPEDANCE RESONATOR

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ABSTRACT

A single layer microstrip bandpass filter using stepped impedance resonators is designed to operate in dual band WLAN frequencies which can simultaneously operate in a first band(with a central frequency of 2,4GHz) and a second frequency band(with a central frequency of 5GHz). The filter is generated by incorporating step impedance resonators in a Hairpin filter topology. The analysis of hairpin filter was investigated in terms of different structural dimension and different substrates thickness

The first analysis was made by comparing the performance of two structures* From the result it is found out that the second structure gave the best performance for both bands and reduced the overall dimension of 20% from the first structure.

The second analysis was carried out by comparing the two type of substrate which is FR4 and RO3003. The two substrate was differ in dielectric contan^^, the thickness of the substrate,/?, and the loss tangent,8. The result shown that the substrate of RO3003 with the thinner and the lower in dielectric constant provide better efficiency for the hairpin filter.

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