

# Abstract

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## **DESIGN OF ULTRA-WIDE STOP-BAND DGS LOW-PASS FILTER USING MEANDER- &#97 &#110 &#100 MULTILAYERTECHNIQUES**

This article presents a new dog-bone defected ground structure (DGS) for low-pass filter (LPF) applications with wide rejection band &#97 &#110 &#100 low-loss in the pass-band region. The prototype LPF consists of three dog-bone cells in the ground plane with an open stub on the top layer acting as a compensated capacitor. The prototype LPF is then realized as a multilayer structure to enhance the filter response &#97 &#110 &#100 reduce its size. The size reduction of the proposed multilayer LPF is about 34% more than the conventional one. The proposed filter has been fabricated &#97 &#110 &#100 measured. Good agreement can be realized between the electromagnetic simulation &#97 &#110 &#100 the measurement results. To minimize the difference between the simulation &#97 &#110 &#100 measurement results, &#97 &#110 &#100 at the same time to reduce the loss in the pass-band region, a modification to the topology of the structure with the aid of the meander idea is used. The meander-filter presents advantages of compactness, low loss, &#97 &#110 &#100 high out-band suppression. The dog-bone DGS cell is then used as a photonic band gap structure to minimize the coupling between two probe-fed patch antennas &#97 &#110 &#100 to improve the two antenna element array efficiency.