

# Abstract

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## **Design of compact microstrip filter with large reject band using a new multisectioned T-shaped defected ground structure &#97;&#110;&#100; multilayer technique**

In this article, a new compact defected ground structure (DGS) low pass filter (LPF) with wide rejection band, low ion loss in the stopband, &#97;&#110;&#100; sharp transition from passband to stopband is proposed. The prototype LPF is composed of three repetitive DGS elements with open stubs to act as a compensated capacitance. Each single DGS element consists of multisections of T-shaped slots. The filter is then realized as a multilayer structure to achieve size reduction &#97;&#110;&#100; enhance the filter response. The proposed filter has been fabricated &#97;&#110;&#100; measured. The agreement between the simulated &#97;&#110;&#100; measured results confirms the effectiveness of the proposed concept. Finally, multilayer LPF is transformed to band pass filter using J-inverter method