Abstract

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Design of compact microstrip filter with large reject band using a new multisectioned T-shaped defected ground structure and 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, and 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 and enhance the filter response. The proposed filter has been fabricated and measured. The agreement between the simulated and measured results confirms the effectiveness of the proposed concept. Finally, multilayer LPF is transformed to band pass filter using J-inverter method