

Design of a selective filter-antenna with low insertion loss and high suppression stopband for WiMAX applications

ABSTRACT

This paper presents a selective quasi-elliptic bandpass filter-antenna. The presented filter-antenna has a low insertion loss in the passband and relatively high stopband rejection. This structure consists of a quasi-elliptic bandpass filter direct coupled with patch antenna. The bandpass filter consists of four ($\lambda/4$) spiral square resonators. It has operates between (3.25–3.6) GHz so it is suitable for WiMAX applications. A CST Microwave Studio Suite software has used to simulate the filter-antenna circuit. The simulated results of the patch antenna and the results of the filter-antenna appears a good matching between the two circuits.

Keyword: Quasi-elliptic; Bandpass filter; Filter-antenna; Insertion loss; Spiral square resonators; CST Microwave studio suite; Patch antenna