# Compact dual-band bandpass filter using open stub-loaded stepped impedance resonator with cross-slots

**The paper can be cited as follows:**

Bukuru Denis, Kaijun Song and Fan Zhang, International Journal of Microwave and Wireless Technologies, Vol. 9, No.2, pp. 269–274, 2017.

## Abstract

A compact dual-band bandpass filter using stub-loaded stepped impedance resonator (SLSIR) with cross-slots is presented. The symmetric SLSIR is analyzed using even- and odd-mode techniques. Design equations are derived and they are used to guide the design of the circuits. Two passbands can be easily tuned by cross-slots and open stubs. Transmission zeros among each passbands are created, resulting in high isolation and frequency selectivity. An experimental circuit is fabricated and evaluated to validate the design concept. The fabricated filter is compact with 19.76×12.7 $mm^2$. The measurement results are in good agreement with the full-wave simulation results.

**Keywords**: Bandpass filter (BPF), Compact, Cross-slots, Dual-band, Dual-mode, Stub-loaded stepped impedance resonator (SLSIR).