This paper presents an accurate design technique for a low-pass filter with complementary split-ring resonators (CSRR). We extract the equivalent circuit component values for designing the filter. The CSRR not only significantly increases the characteristic impedance of microstrip line, but also improves stopband performance by rejecting higher order passbands. For increasing efficiency and reducing the area of circuits, we usually utilize the defected ground structure, but the conventional design did not consider the parasitic effect of stub at high frequency. The parasitic effect may result in significant frequency deviation. In order to improve the accuracy of the low-pass filter design with CSRR, an equation to find the parasitic inductance is suggested. This inductance is used to modify the frequency deviation of the low-pass filter.

Keywords: complementary split-ring resonators (CSRR), low-pass filter, parasitic effect.
REFERENCES


