Abstract

This paper proposed a planar microstrip ultra wideband (UWB) bandpass filter (BPF) with wide upper stopband designed for applications in UWB wireless communication as stated by Federal Communications Commission (FCC). The proposed UWB filter is realized with a basic multiple mode resonator (MMR) structure feed by interdigital coupled lines for achieving higher degree of coupling. To achieve a wide upper stopband a sharp cutoff 3rd order Low Pass filter is cascaded with MMR. This filter is designed on RT/Duroid 6010 substrate of thickness 1.27 mm with Dielectric constant 10.2. The electromagnetic simulation software, Computer Simulation Technology Microwave Studio (CST MWS) is used for the simulation and analysis of the
designed structure. The insertion loss of proposed filter is less than 0.2 dB at 6.8 GHz and very flat over whole pass band (3.1-10.6 GHz) also return loss is greater than 12 dB in the passband. By adding the low pass filter, the upper stopband is extended up to 20 GHz.

References

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Index Terms

Computer Science Communications
Keywords
Ultra Wide Band; Upper Stopband; Interdigital; Multiple Mode Resonator; Low Pass Filter; Microstrip.