

# **Comparison study on chebyshev and composite lowpass filter for harmonic rejection in two ways radio**

## **Abstract**

The paper is on a comparison study on Chebyshev and Composite lowpass filter designed at 300-400 MHz used for harmonic rejection in two ways radio. The filter is used to attenuate harmonic that generated by power amplifier to prevent from radiating out through the antenna. The filter's circuits were first simulated using Advanced Design Software (ADS) to obtain the best filter characteristic based on S-parameter to see whether they met the specification for two way radio or not using the tuning and optimization features in AD S. The final low pass filter circuits were fabricated using chip capacitor and chip inductor components on printed circuit board. The S-parameter were measured using network analyzer. It was found that the fabricated had similar trend as simulated one. However, the cutoff frequencies are slightly different from what are intended to design. The simulated result showed the composite filter was found to be the best low pass filter and able to perform the better filters response. On the other hand, the fabricated Chebyshev filters was found to be the better filter output response.