Fig. 1
Schematic diagram of a MPF based on multi-wavelength laser generated using a windowed FP filter.

Fig. 2
FWHM tuning by varying the number of wavelengths used, with a fixed wavelength spacing of 40 GHz.
Conventional RF signal processing techniques have several disadvantages such as limited bandwidth and electromagnetic interference (EMI). Processing of RF signals in the optical domain is proposed to overcome these limitations. This concept also offers great flexibility in selecting the RF frequency of operation, RF bandwidth, and the filter response. The outcome from this research work will lead to development of high performance multi-tap microwave photonic filters (MPF) which have a high main to secondary sidelobe ratio (MSSR) and tunable filter response; this combination has very significant impact on microwave signal processing techniques for various applications.