In this study, the circuit with bandpass Chebyshev filters successfully increases the frequency from 4 GHz to 10.5 GHz, but BW (GHz) Two Power (< 16 14.7

In Method 1, the band pass filter is implemented. The amplifier has been designed in TSMC 0.18 μm CMOS model. The circuit achieves a power gain of 10 – 12.6 dB with input match of -8.5 dB over the band and minimum noise figure of 3.4 dB while the power consumption is 10 mW.

In Method 2, the transformer-feedback technique is presented. The amplifier has been designed in TSMC 0.18 μm CMOS model. The circuit achieves a power gain of 10 – 12 dB with input match of -7 dB over the band and minimum noise figure of 2.9 dB while the power consumption is 14.7 mW.

The result demonstrate that both of the designs allow us to achieve a good antenna termination with low noise and high gain.