

**98. Final Simulation Verification of the US and Opto Receiver Band Pass Amplifiers  
for the US-Opto Receiver designed by F. Kottelat**

**DRAFT 1.0**

PAN, Nov 7th, 2015

**1. Simulation US Band Pass Amplifier 40 kHz (One Stage only simulated)**

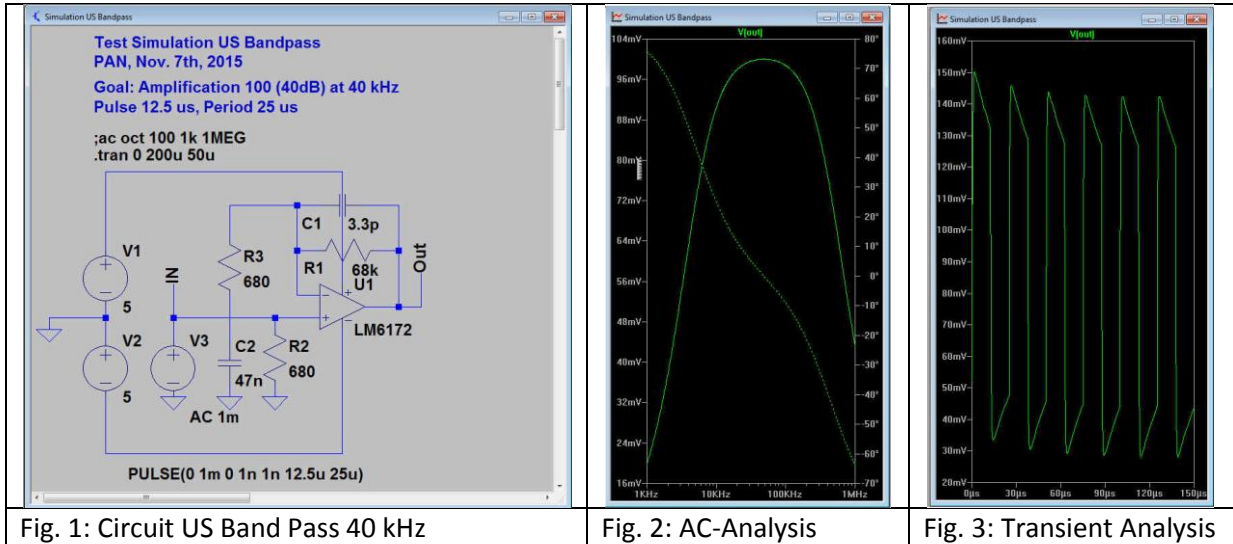


Fig. 1: Circuit US Band Pass 40 kHz

Fig. 2: AC-Analysis

Fig. 3: Transient Analysis

Comment: Perfect Performance, Gain 100 (40dB), Offset 100 mV, but ok for AC-Coupling to the next stage

**2. Simulation Opto Band Pass Amplifier 15.6 kHz (One Stage only simulated)**

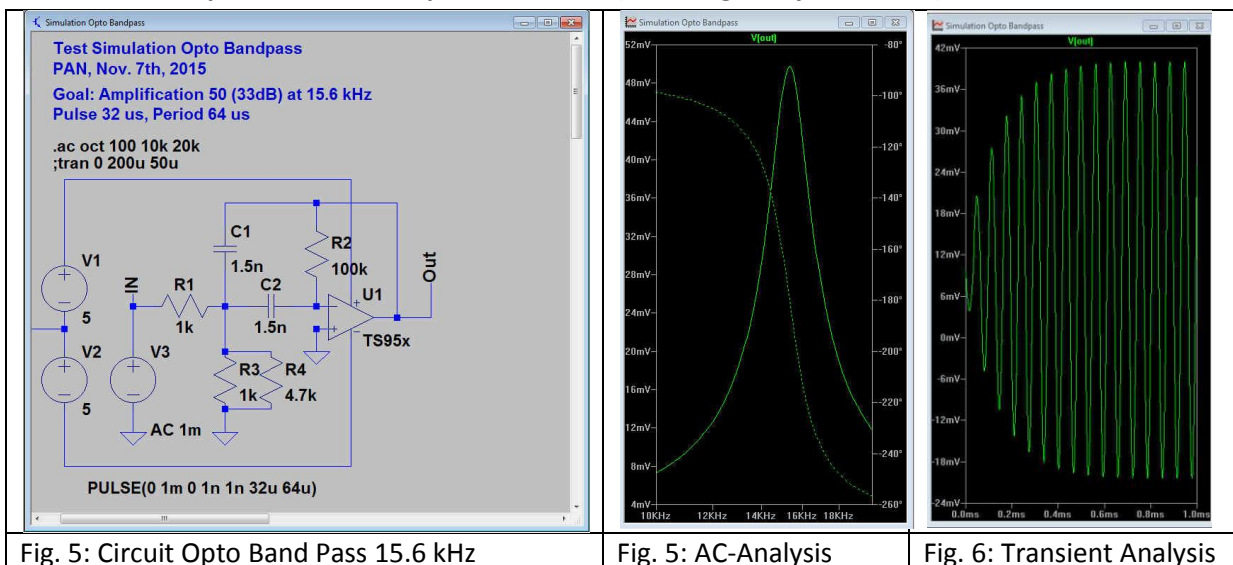


Fig. 5: Circuit Opto Band Pass 15.6 kHz

Fig. 5: AC-Analysis

Fig. 6: Transient Analysis

Comment: Quite good performance, Gain 50 (33dB), Offset only 12 mV, ok for AC-Coupling to the next stage. High Q, about factor of 10, good for suppressing wrong optical signals.  
Perhaps not perfect: slow reaction on incoming 15.6 kHz burst, due to the high Q factor!  
If needed, better results could be achieved perhaps with the more expensive high speed Opamp LM6172 (much more supply current!), in a circuit as shown in Fig. 1 for the US-Band pass amplifier!