

Memorandum

To: Senior Management
CC: Michael Cuomo
From: Sriram Gopalakrishnan and Rupesh Gajurel
Date: 4/29/2009
Re: Filter AC response

The subject of this memo is the AC response of the filter using a function generator. Previously the response did not match the expected response from simulation. However determined the cause for this was the 50 ohms source resistance.

To address the issue of the series resistance we added a 1 ohm resistance in parallel. The signal was then fed to the filter and the AC sweep was then performed. The output was measured across the two filters. The circuit schematic used is illustrated below.

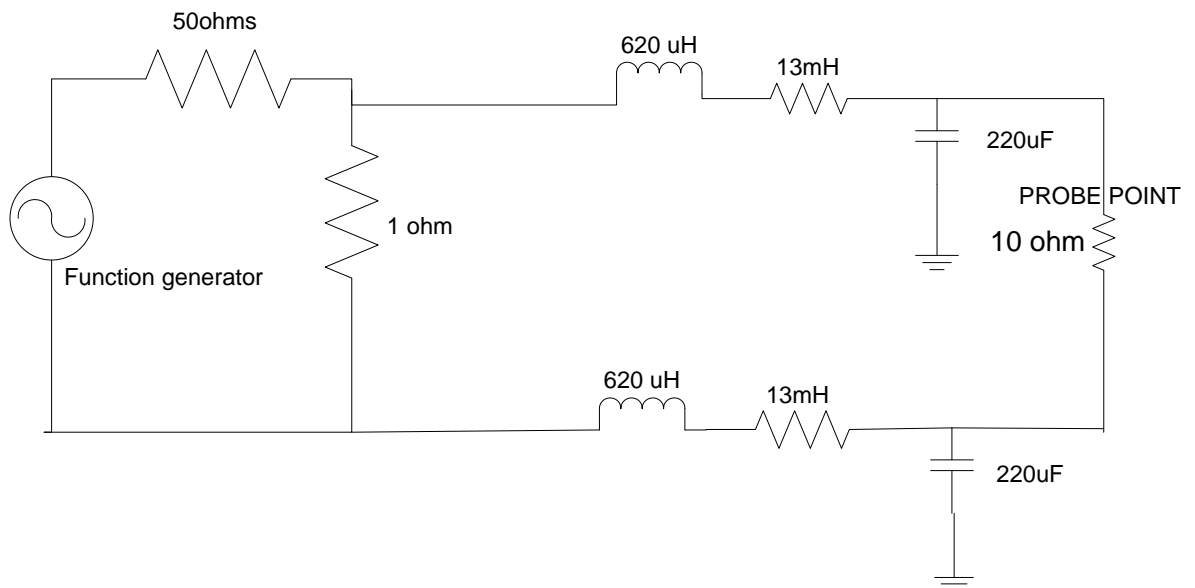


Figure 1: Schematic of the filter AC response test circuit

This circuit was simulated and an AC sweep was performed in Pspice. From the AC response we determined the 3 db point to be at 650Hz. This is illustrated in the graph below.

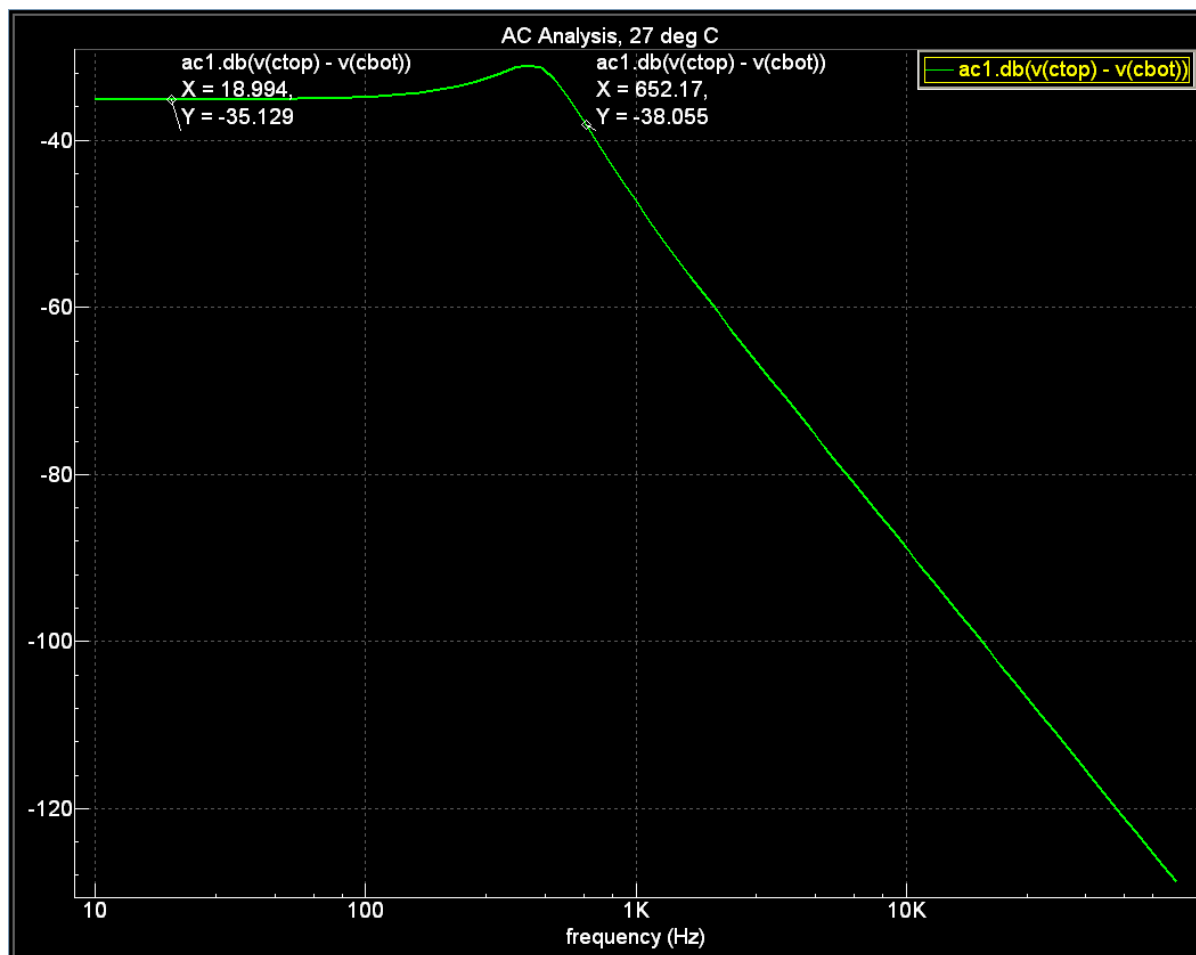


Figure 2: AC sweep of filter in Pspice

After this we built and tested the filter circuit using a function generator (as in the schematic). We measured the voltage at low frequency (10Hz) across the output and determined the voltage at the -3db point. The frequency was gradually increased and the voltage was noted at each frequency. The data was recorded and plotted in Excel © and the -3db point was determined to be 550 Hz . This is illustrated in the following graph using the data taken.

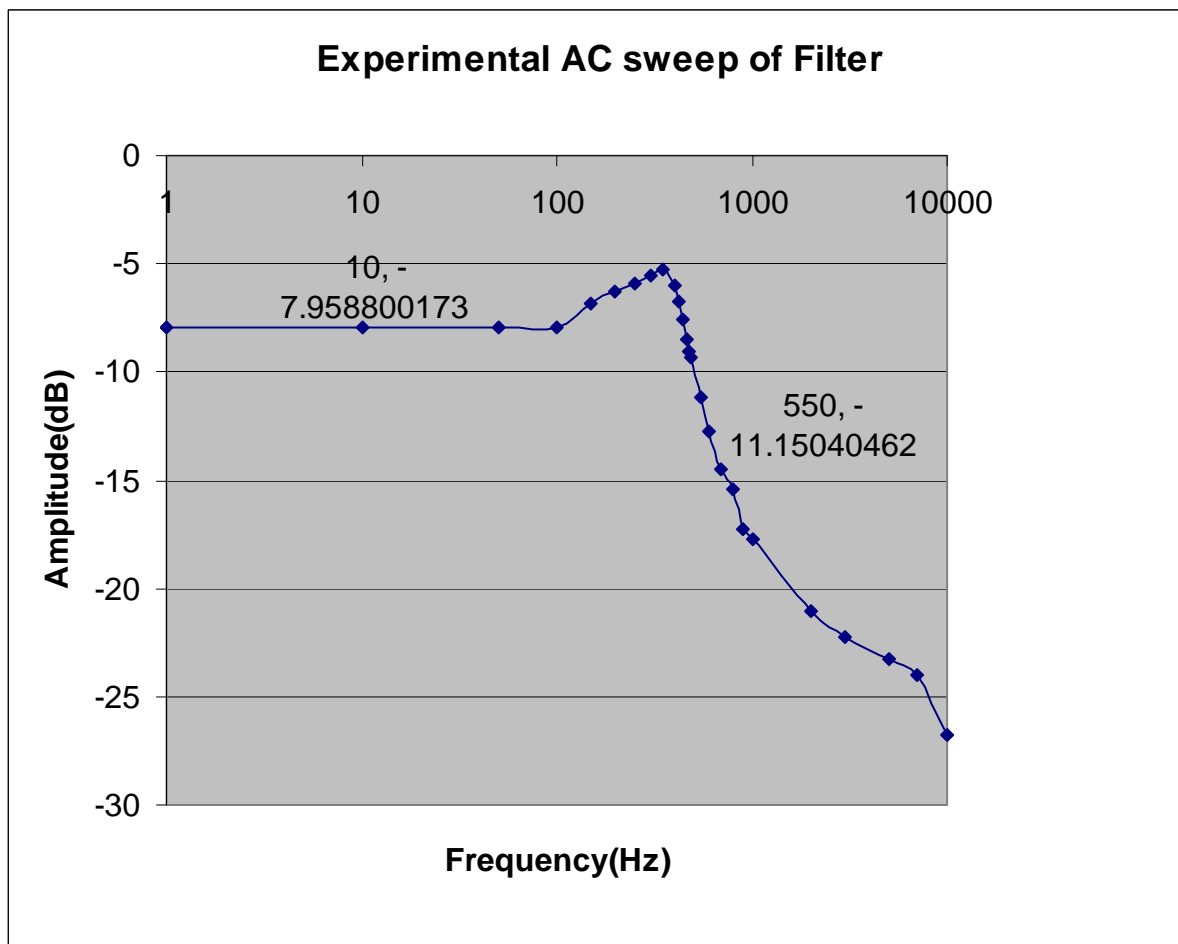


Figure 3: Experimental data for Filter AC sweep

The response is very similar to the simulated response. This shows that the filter meets the requirements for the output filter of the inverter.