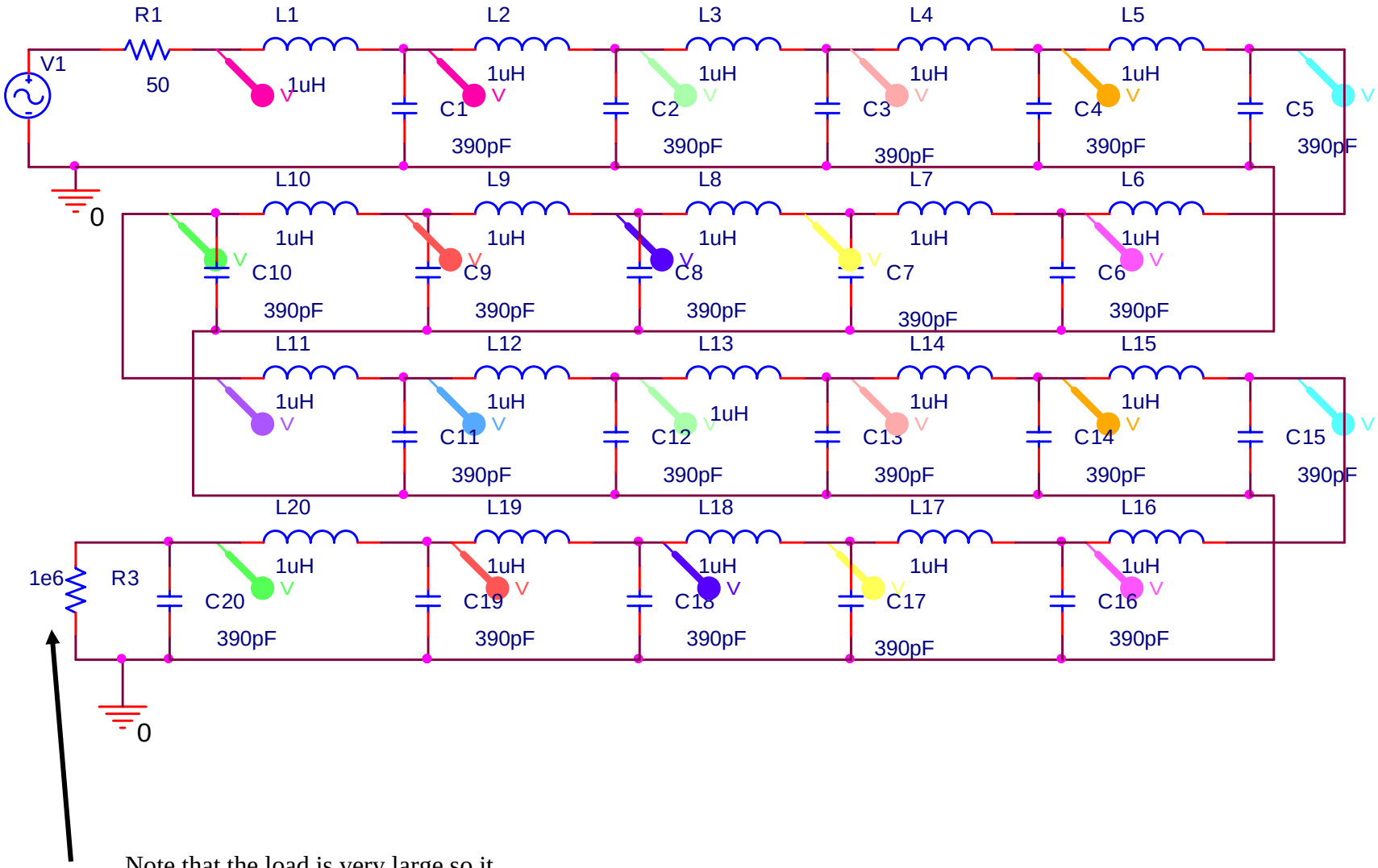
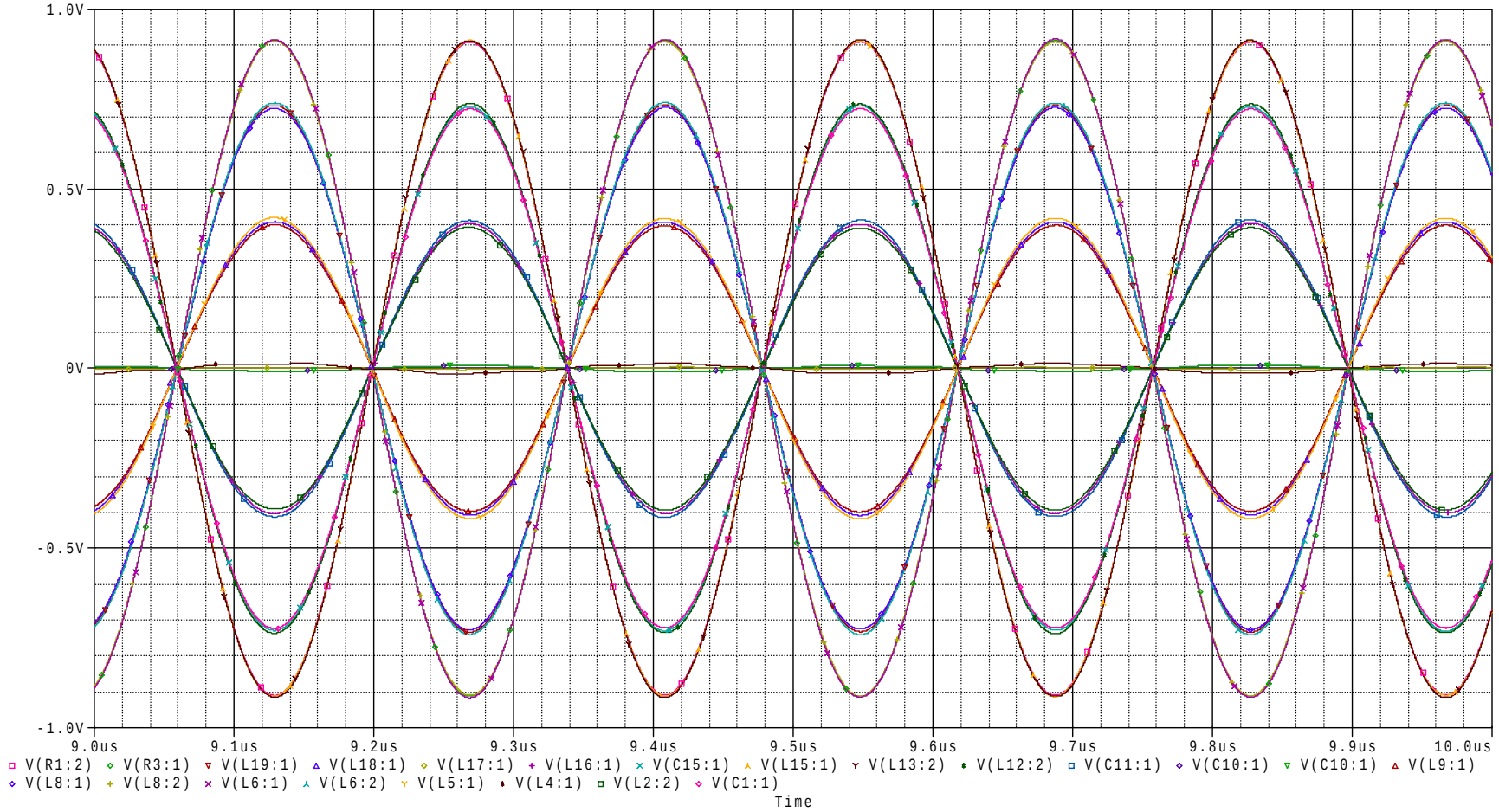
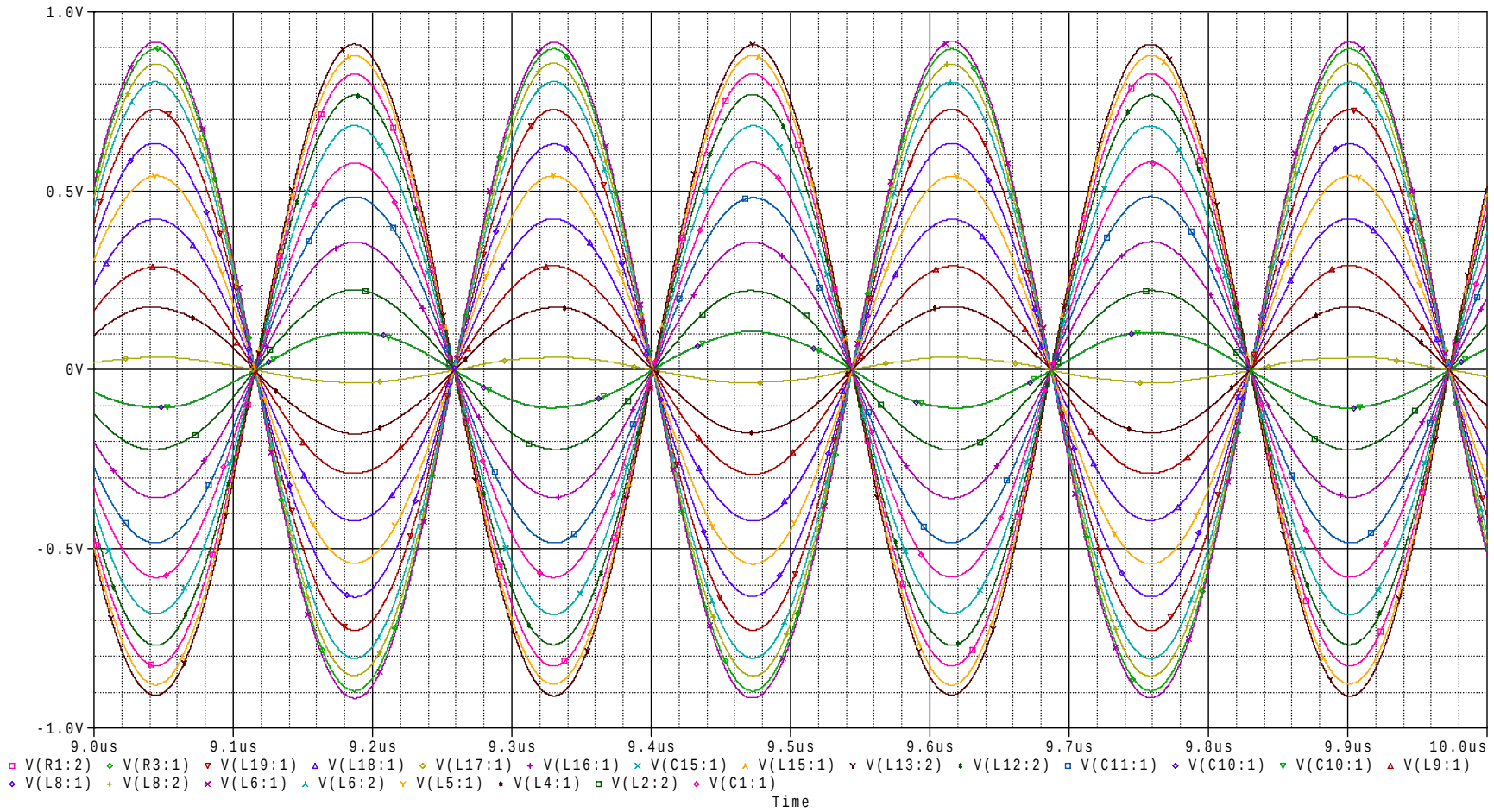


Note that the load is very large so it acts essentially like an open circuit.

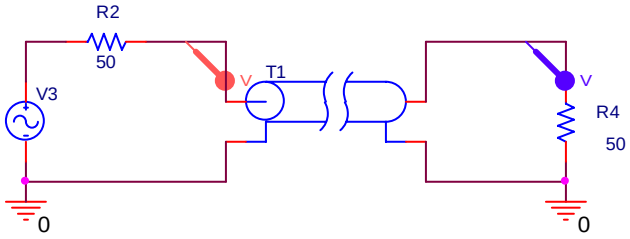


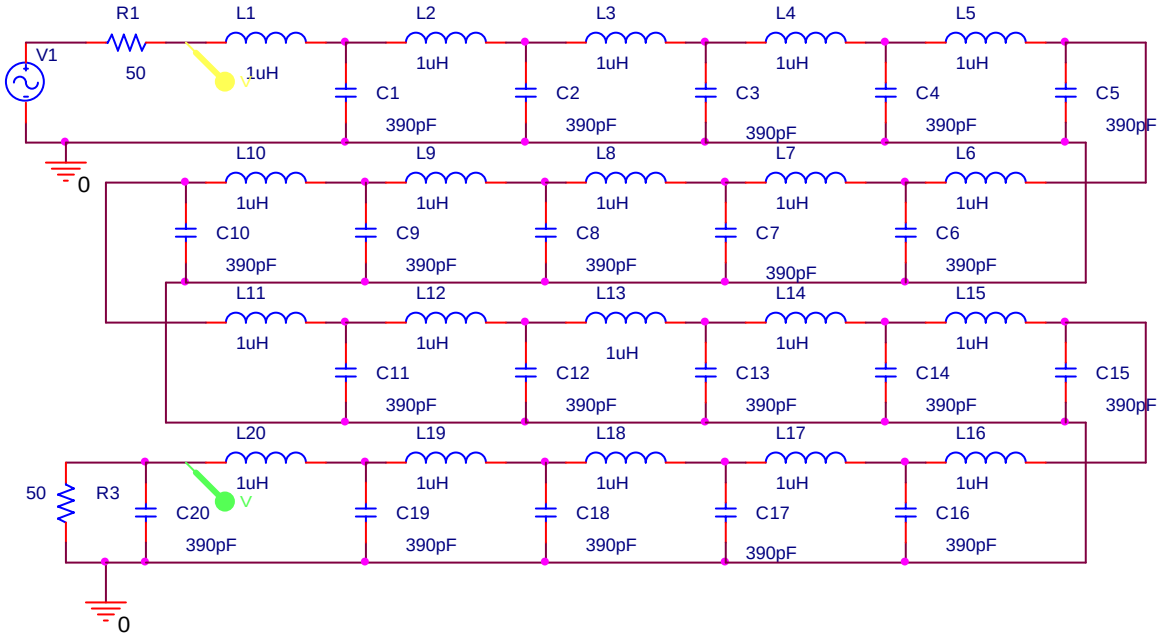
These are the measurements made at all of the nodes when the frequency is 3.58MHz. Note that there are a few nodes where the amplitude is very small. When you do the experiment in JEC 4107, you should see voltages like these. Of course, you can only measure them two at a time with the scope.



These are the measurements when the frequency is 3.5MHz. Note that the amplitude is not zero at any node. Also note that the signals appear to all be in phase. This is because we are looking at the effects of a standing wave in which the total signal is indeed in phase within each half wavelength. Try the java applet at http://bessernet.com/Ereflecto/tutorialFrameset.htm and you will see this effect.

If the load is changed to 50 Ohms, the line should be matched and the input and output voltages should be the same for all frequencies. However, at the frequencies we are working with here, the lumped model of the line is not perfect. There are small errors, but the qualitative features of the line are still evident. To see the range of frequencies for which the lumped model is accurate, use a 50 Ohm load and do a frequency scan rather than a transient analysis. For this case, one can also add a regular transmission line model for comparison purposes.





The frequency scan shows that the lumped model is reasonably accurate up to around 1MHz. Compare the input (red and yellow) and output (blue and green) voltages to see this.