

# PCB Testing Plan - C5 L2C ELEC 391

## Precautions:

- Hand Washing: After completing the soldering and cleaning up the work area, washing is essential.

## Pre-Procedure Setup

- Select the best PCB:
  - Out of the three boards soldered, select the best PCB, ensuring no component is shorting, and use a DMM to check for continuity and also open circuits or short circuits
  - Using the multimeter and an inductance/capacitance measurement tool, check to make sure that all the resistance, capacitance and inductance values on the PCB are correct.
  - Make sure that any polarized components are placed correctly by referencing the circuit schematic on Altium Designer.
- Gather all required tools: Set up all measuring tools including DMM, oscilloscope, power supply and speaker.
- LT-Spice: Have LT-spice open to interpret and compare real simulation results.

## Testing Procedure

- ☒ Before connecting the PCB to any power supplies, make sure that all power supplies are turned off.
- ☒ Turn the knob on the power supply until you reach the voltage that you desire. For the initial test, we will start with 3.3 V.
- ☒ Set the current limit to a value the PCB can draw. For 3.3V, set the current limit to 20 mA.
- ☒ Turn on the oscilloscope and attach the probes to the outputs of the PCB while putting the ground to the ground node of the PCB or voltage supply (they are the same ground). Then on the oscilloscope click on 'Default Setup'.
- ☒ Then connect the voltage supply to the power input of the PCB and the ground of the voltage supply to the ground input of the PCB.
- ☒ Turn on the power supply.
- ☒ Check the voltage supply and look at how much current is being drawn, and at the same time check the oscilloscope and verify that the output is the expected amount (frequency and voltage peak) and also make sure the current being drawn is the expected amount.
- ☒ ***If the current being drawn is not the expected amount OR the output is not the expected amount, then turn off the power supply immediately.***

- ☒ **Individually test the outputs O1 and O2 to understand which component might be having issues. Test for continuity again and use DMM to test voltages on different points.**
- ☒ Make sure the frequency of the output is in the audible range, and if not then adjust the potentiometer until it is.
- ☒ If the frequency is in the audible range then connect the outputs to the speakers and check that the sound emitted is of audible range (if you hear a sound then it is audible...)
- ☒ Demonstrate to TA's if everything is good.

## Post-Procedure

- ☒ Turn off voltage supply and the oscilloscope.
- ☒ Take off the oscilloscope probes from the PCB and then take off the voltage supplies' alligator clips from the PCB.
- ☒ Clean up the area around you and make sure that no components have come off the PCB.