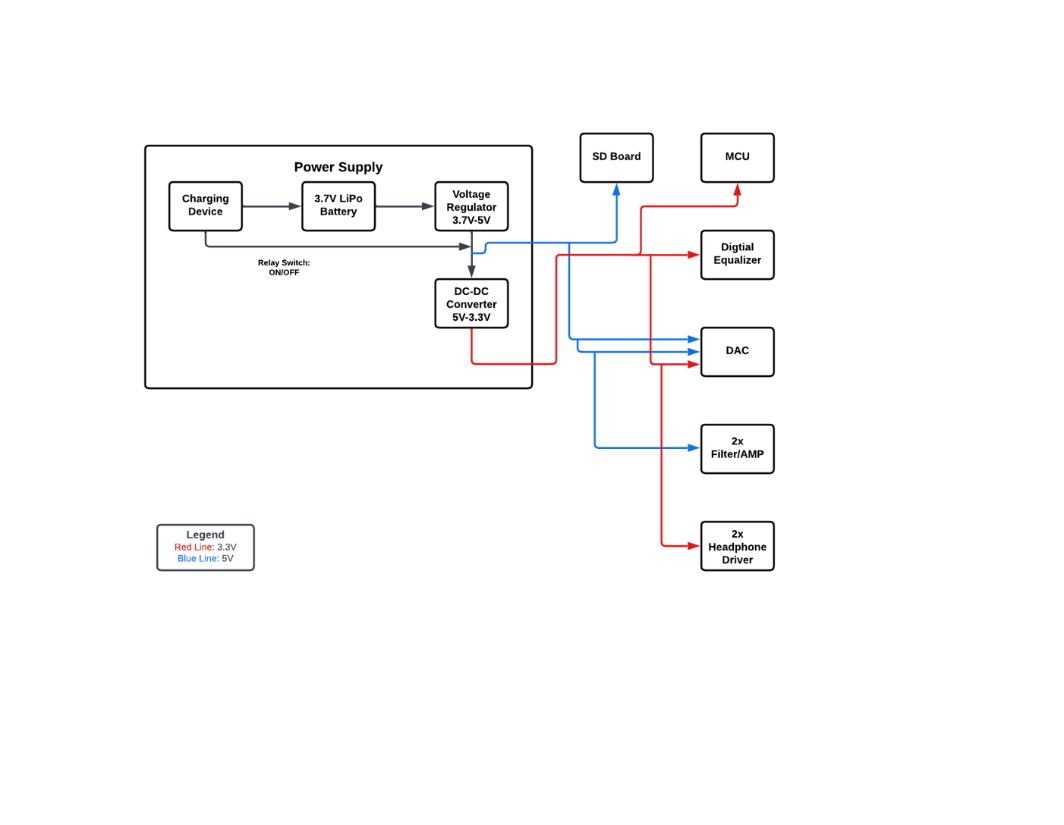
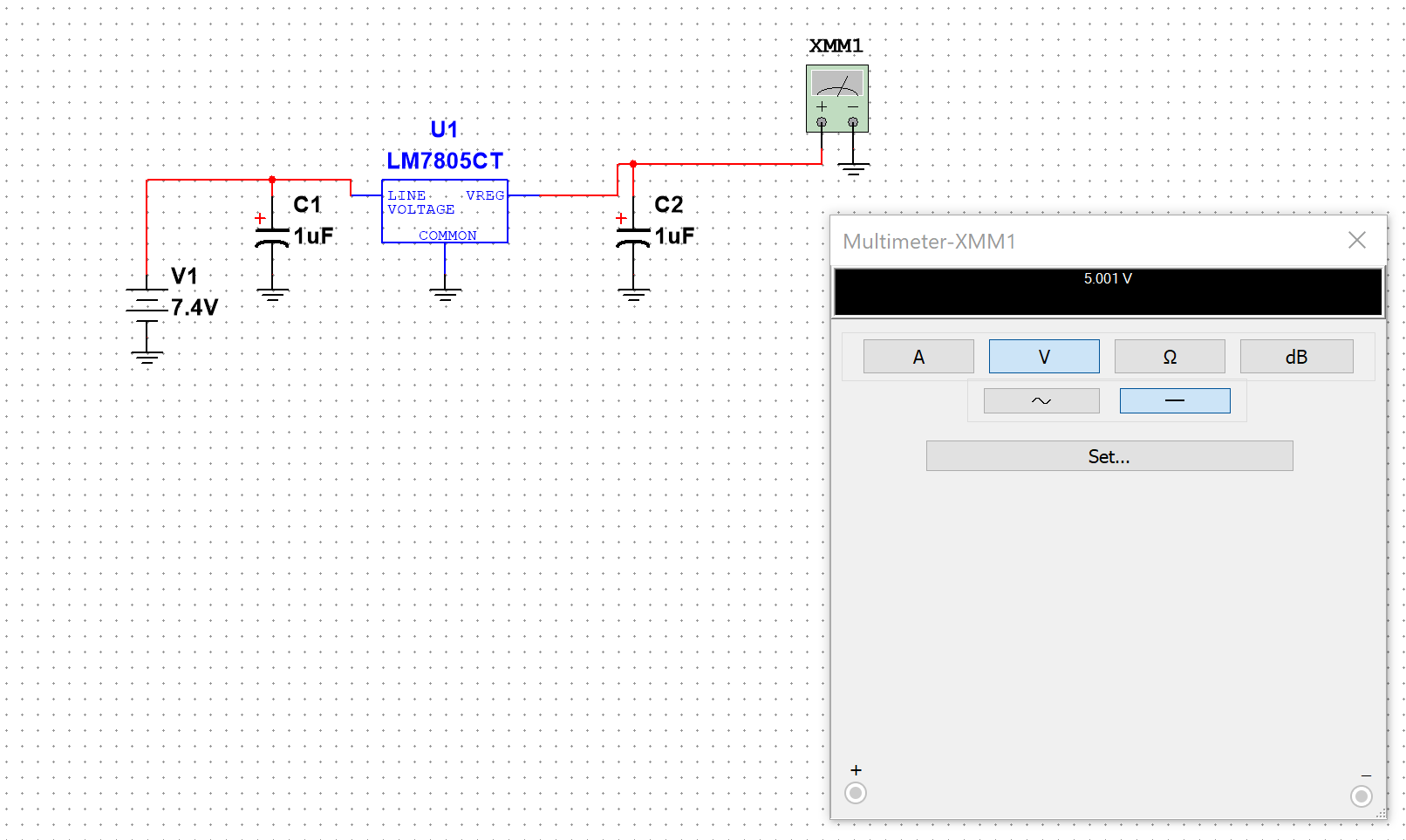
**ECEN403 Validation Document – Power and Mechanical Subsystem**

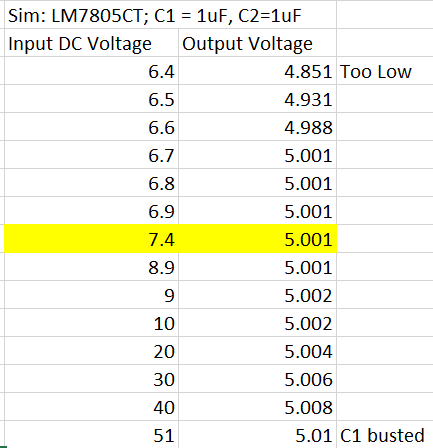
**Power System Diagram:**

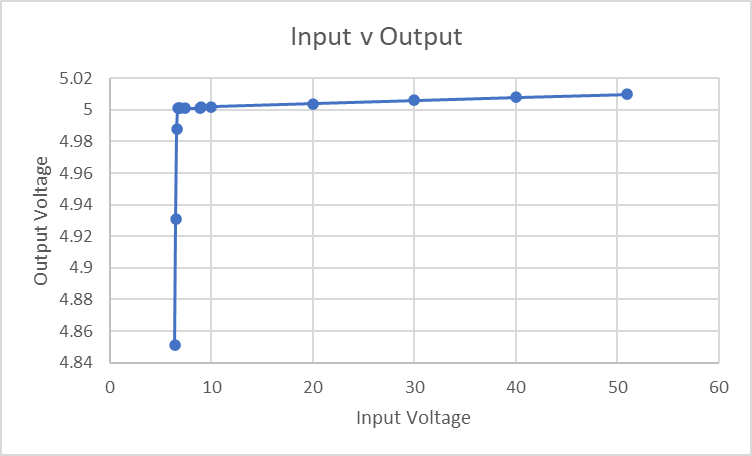
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**Voltage Regulator (5V output):**

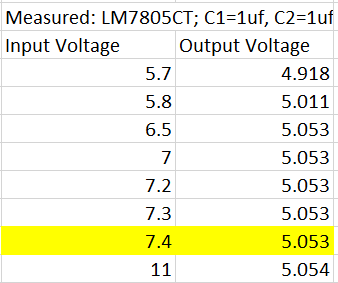
Simulations:

****



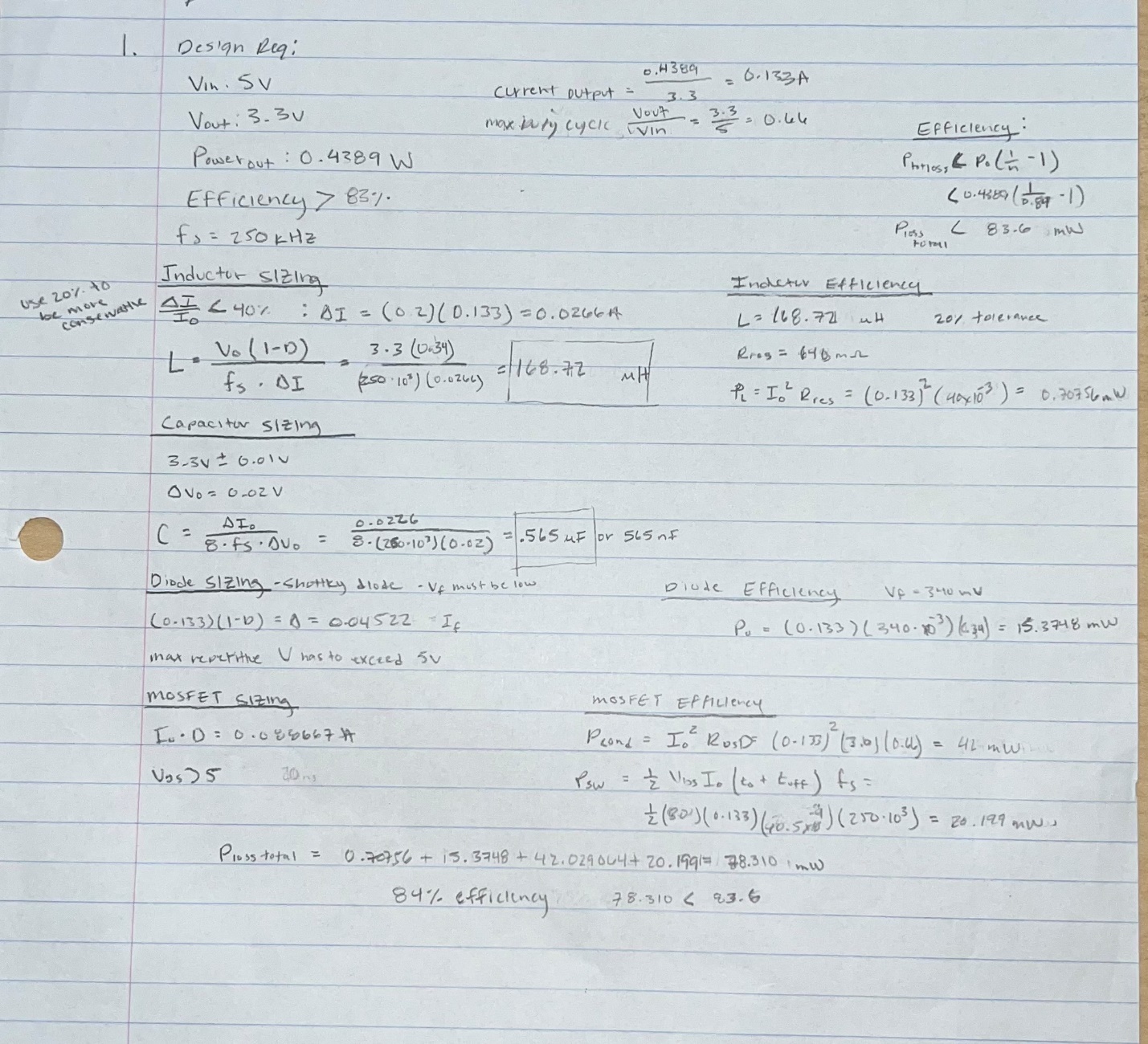
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Measurements:



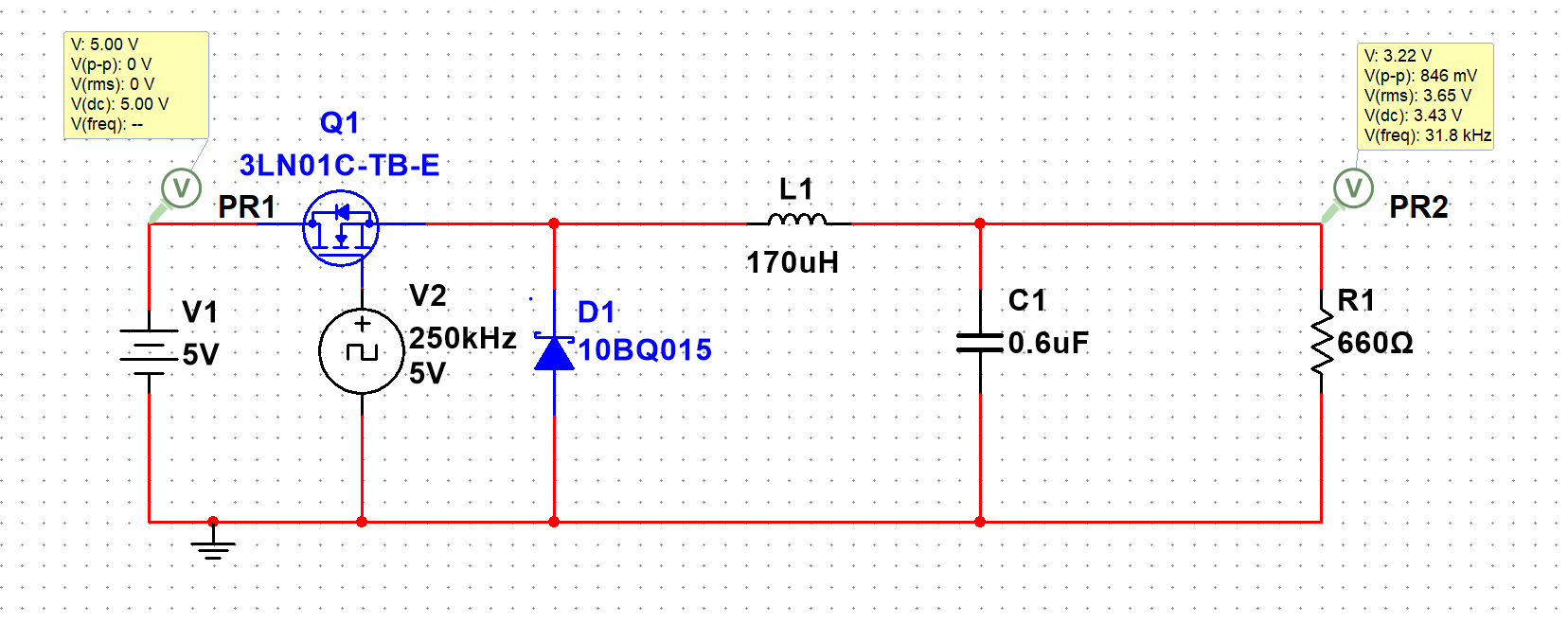
**Buck Converter (3.3V output):**

Calculations:



Calculations include: Vin, Vout, Load Power, Load Current, Switching frequency, Duty Cycle, Component Sizing (Inductor, Capacitor, Diode, MOSFET), and Power Loss Efficiency

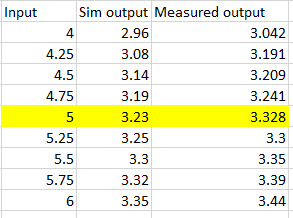
Simulations:

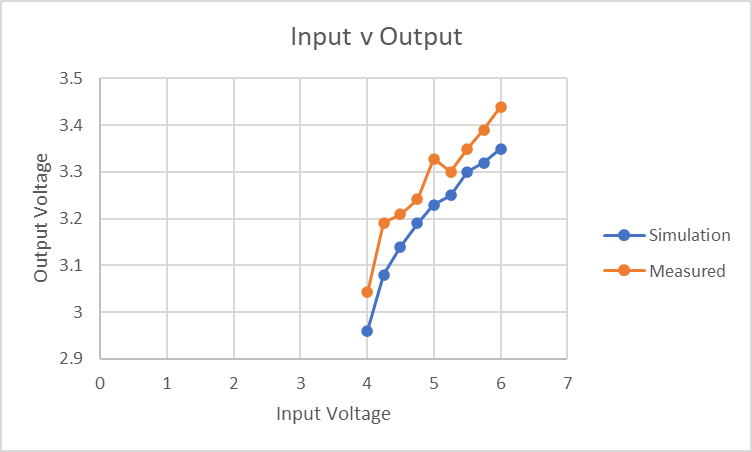


Increase KHz, decrease voltage

Increase duty cycle, increase voltage

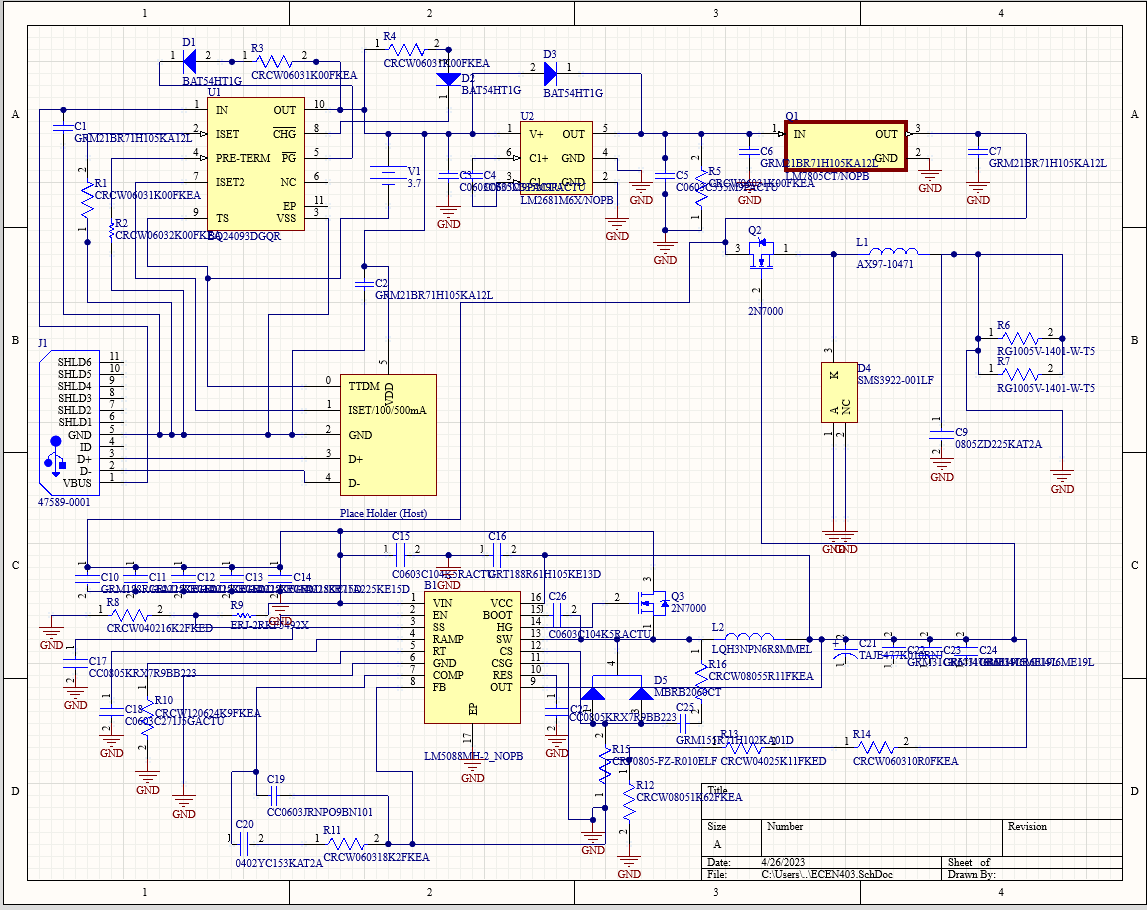
Input v output:





**PCB Design:**

Schematic:



PCB Layout:

