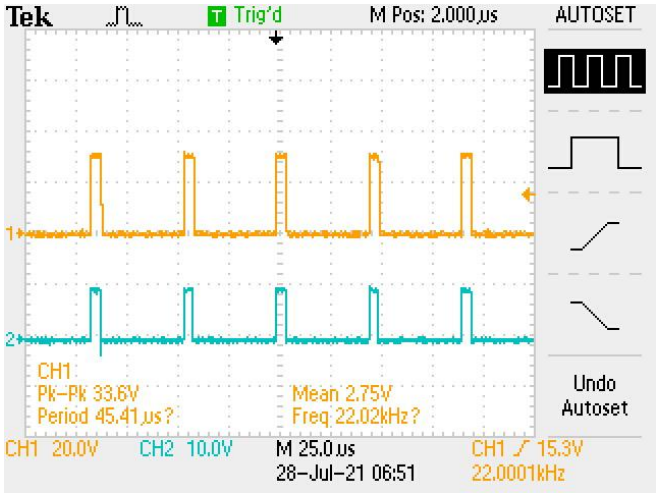
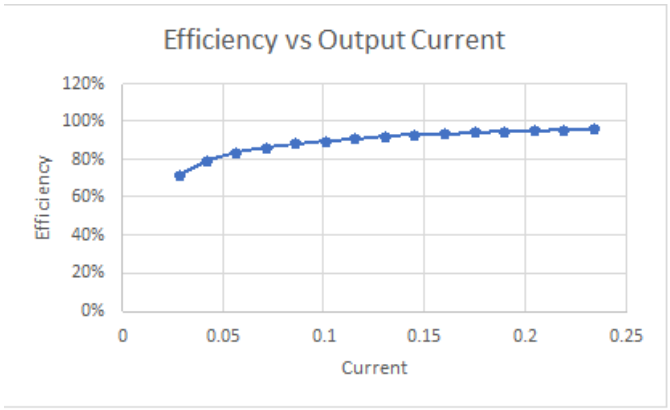
Hau shian 300493343 eeen313 lab 3 lab partner: toby giri

1.

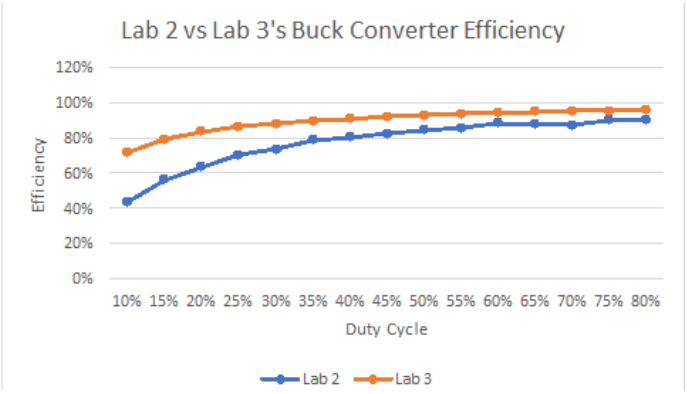


2.



It seems like the main losses occur approximately less than 0.08A but reach a steady state at approximately 0.15A.

3.

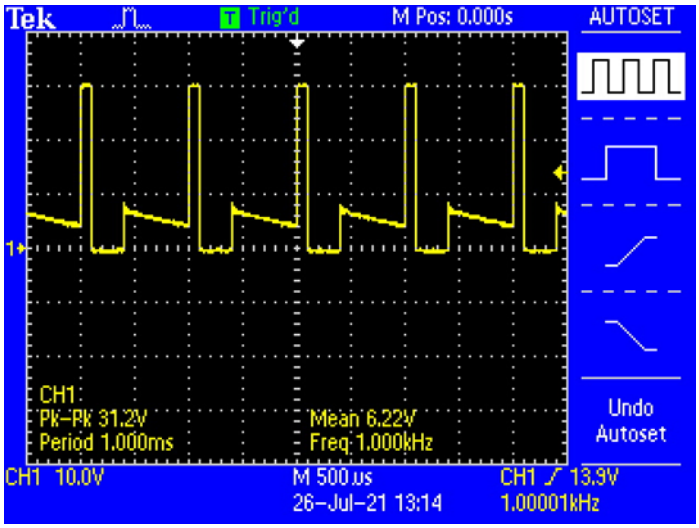


Compared to the synchronous buck convertor, the asynchronous convertor performs at a higher efficiency due to its greater efficiency rating at a lower duty cycle. In addition, at a 10% duty cycle the asynchronous buck converter beat the synchronous buck converter by a28% margin.

4.

A reason why it may be favourable to choose a non-synchronous buck converter over a synchronous buck converter is resource, since diodes are needed for asynchronous buck converters. Asynchronous buck converters are generally more cost effective than mosfets (synchronous buck converter). Additionally, an asynchronous buckconventer has one dead time (due to only using 1 mosfet) whereas a synchronous buck converter has 2 deadtimes between mosfets.

5.



I used a classmate's oscilloscope reading as my circuit had issues during this stage of the lab. The reason this displays when the switching frequency is at 1kHz was because it was always in discontinuous conduction mode (below the cutoff frequency) whereas DCM configuration would only have some section that was discontinuous.