DC Link Ripple Test

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Parameters

- Plotted percent ripple on the DC bus
- Using 180 uF DC Link Capacitor
- Switching frequency varying between 1kHz and 100 kHz
- Tested at three different currents
  - $I_{\text{peak}} = 115.74$ A
  - $I_{\text{nominal}} = 56.306$ A
  - $I_{\text{light}} = 28.153$ A
- I inferred the light current as what we might see as an average during a drive cycle.
  - Please let me know if there are better numbers I could test
Results

Percent Ripple vs. Switching Frequency

- Percent Ripple at 115.74 A IL
- Percent Ripple at 56.308 A IL
- Percent Ripple at 28.153 A IL

Frequency in Hz

Percent Ripple

×10^4
Results

- Percent Ripple was high for the extremes (high current and low switching frequency)
  - These extremes will not occur within the system.
- For more likely values the Percent ripple seemed to be more reasonable
  - 9.3% at 115.74 A and 16 kHz
  - 4.6% at 115.74 A and 32 kHz
  - 3.67% at 56.306 A and 16 kHz
  - 1.8% at 56.306 A and 32 kHz