

LMU - Cluster Universe
Stefan Rummel, Andreas Seiler

Power supply update

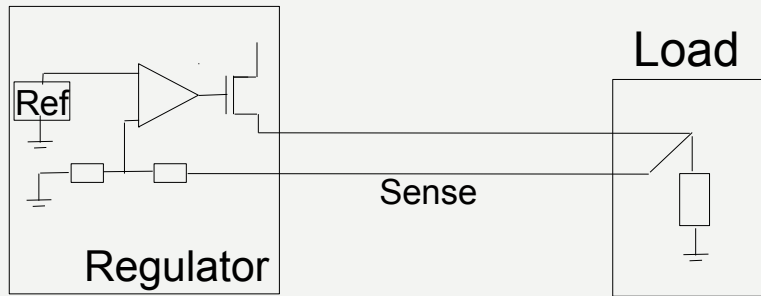
EVO Meeting 26.10.10





- Update on regulation with remote sensing
- Load regulation
- Capacitors & overshoot

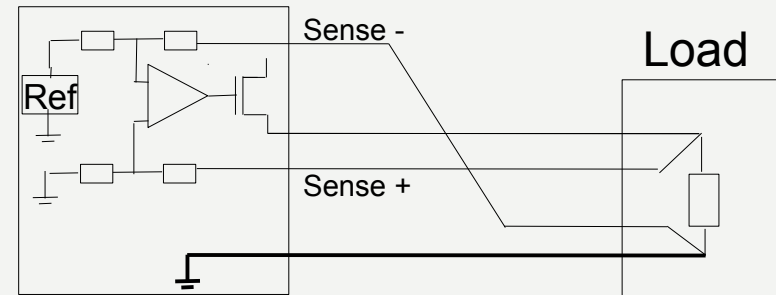
Setup presented in VLC:



- Load and regulator share common ground

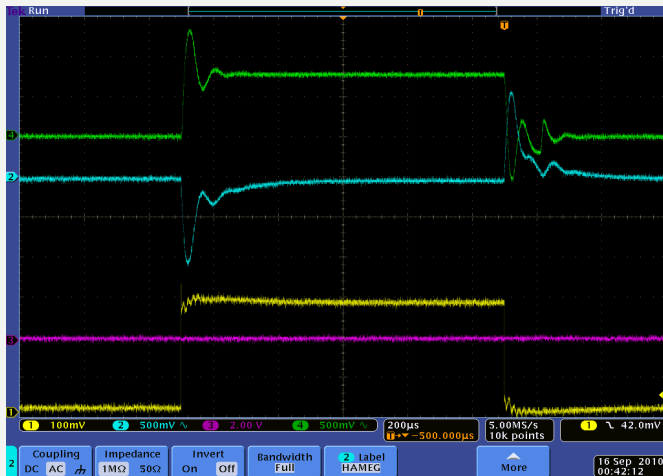
Setup now:

Regulator

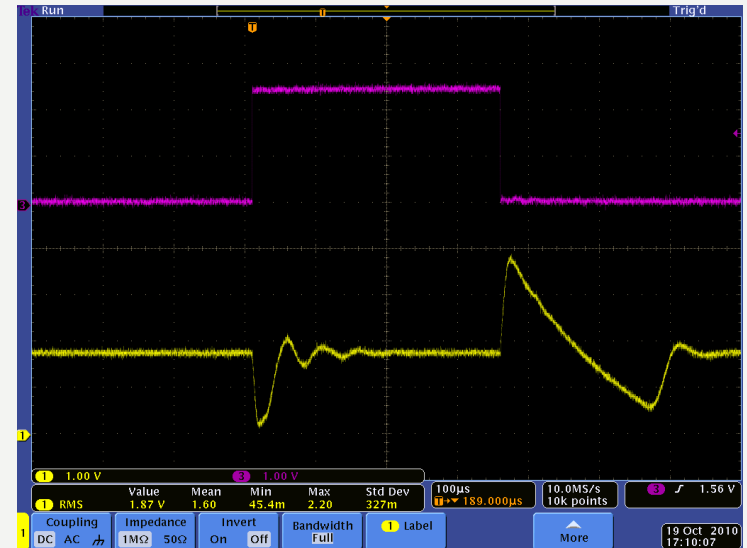


- Load and regulator have distinct grounds

- Setup is now equivalent to the PXD setup (floating PS)

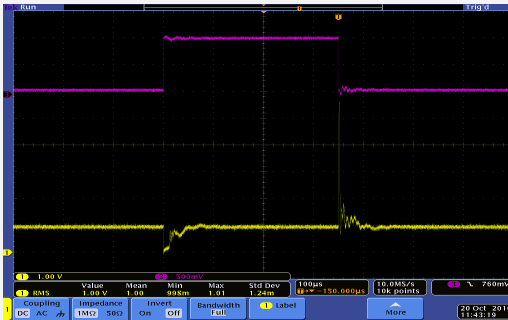


→ New setup:



- Power over: 15m, AWG 18, 320mΩ, Sens via AWG26 TWP
- (0.1/2.6)A load step
- Overshoot: 1V for 20us → Now: 2V

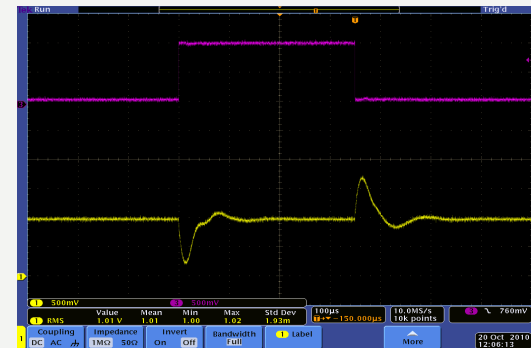
Load capacity vs. overshoot



.1µF



1µF

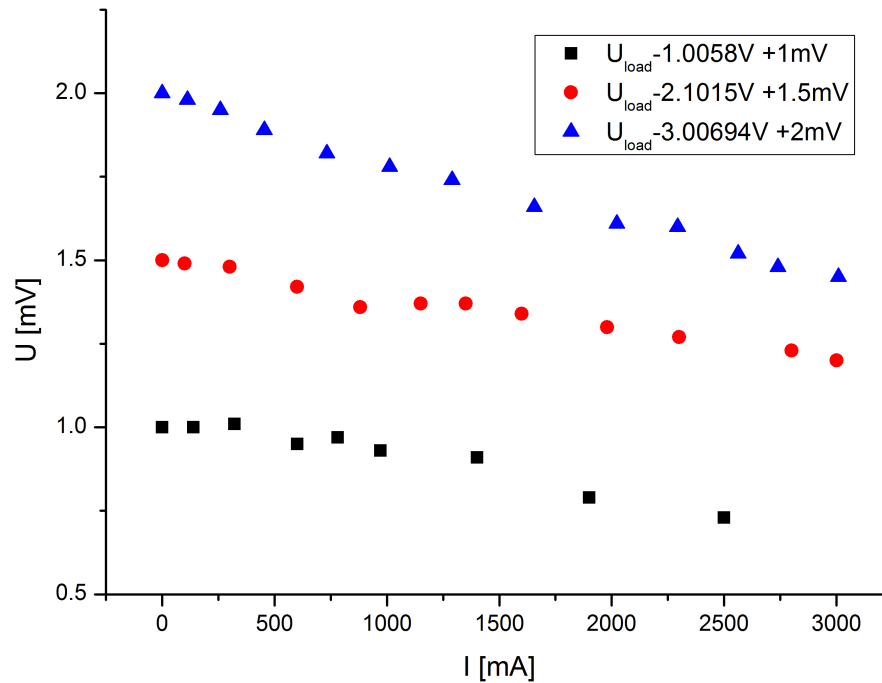


10µF

- Power via: 15m, AWG 18, 320mΩ, Sense: AWG26 TWP
- 1V output voltage, 1A load step
- 1µF needed to stay within V_{os} 1%



100us/div



- Power: 15m, AWG 18, 320mΩ
- Sense: 15m, twisted pair, AWG 26
- Voltage constant within 500μV



- Regulator with realistic sense works fine
- Good DC regulation – 500 μ V for 3A
- To keep overshoot within V_{os} 1% 1 μ F required
 - should be possible on PP level
- Need to include flex (prototype) into tests