EE4951W Rev. A Testing

**Power System**

Converter Selection Controls

* Comparator Inputs good
* U7 regulates to 2.7v
* Rework Done on U6 (See 1)
* Buck converter (U5) working
* U9 Needs some minimum output load to regulate
* USB\_5V LED always on when powered. Flip M5.

**Rework**

1. Rewire U6 inputs (Flip U6 +/- inputs)
2. Remove D6
3. Connect V5\_MAIN to V5\_SUM (Net naming error)

EE4951 Rev. B Changes

**Power System**

1. Flip U6 +/- inputs
2. Add hysteresis and overlap to U6 range
3. Add blocking FET to output of boost converter (U8)

**Voltage Measurement System**

1. Testing was done for the voltage divider (consisting of components R22 and R24).

V\_BAT supplied was 24V. The measured output voltage recorded was about 2.907V.

1. U4 was also tested. The output voltage measured and recorded was about 2.908V.

**Current Measurement System**

1. Range 0: This range is good (within 0.5%)
   1. 119.9 uA -> 3.000 V
   2. 59.9 uA -> 1.496 V
   3. 89.9 uA -> 2.251 V
2. Range 1: This range functions but measurements are off
   1. 1.200 mA -> 2.922 V ~2% error
   2. 100.3 uA -> 250.5 mV This one is actually right on
   3. 120.1 uA -> 292.9 mV ~2% error
   4. 600.3 uA -> 1.366 V ~9% error
3. Range 2: This range is good
   1. 59.96 mA -> 1.487 V
   2. 120.0 mA -> 2.987 V
   3. 90.22 mA -> 2.243 V
4. Range 3: The readings were good, but there was significant heating
   1. 600 mA -> 150.3 mV
   2. 1.198 A -> 298.7 mV
   3. 2.003 A -> 0.500 V
   4. 3.002 A -> 0.750 V
   5. 4.003 A -> 1.001 V

**Microcontroller/Firmware**

1. DutISense.updateADCVal() timing
   1. 35 instruction cycles
   2. 583ns at 120MHz (1.7MHz)
2. ADC Sample Rate
   1. 152.6kHz (module)
   2. 76.3kHz (per channel)