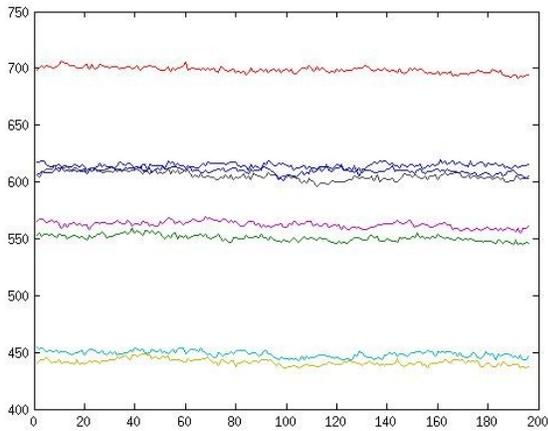


***FEB 5.x Preproduction Evaluation***

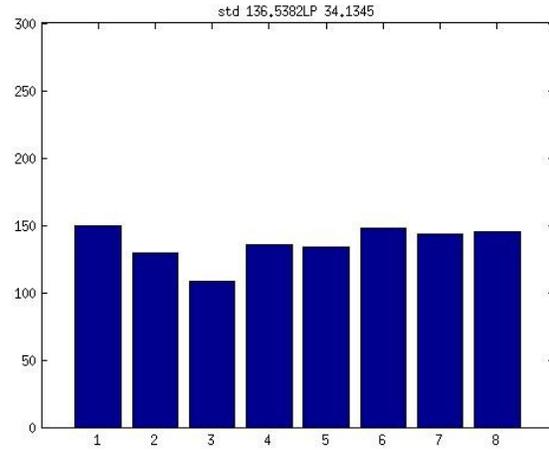
Nathan Felt John Oliver

2013, April 30

## Baseline Noise



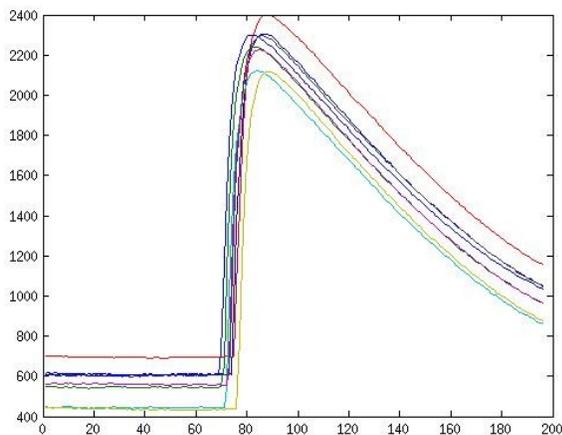
ADC Count vs Sample Number



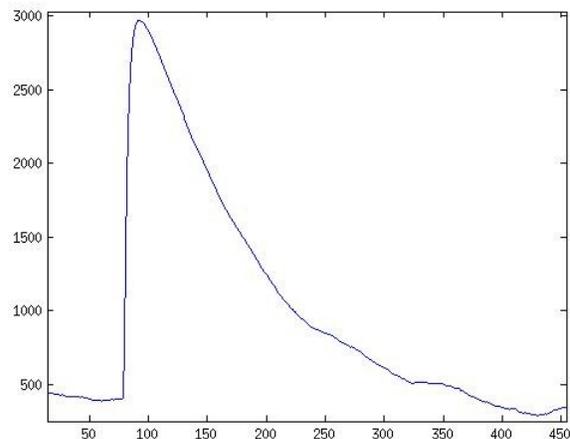
RMS e- vs Channel

Baseline samples for first 8 channels were taken without APD cable. This test will be expanded to include all channels with APD cable and input capacitance. We will also explore different rise and fall time settings. The value of the FEBV4 sensitivity was used for the noise unit conversion and will be verified with the charge injection tests.

## Charge Injection and Calibration



Internal ASIC Charge injection in ADC count vs Sample



External Calibration Charge injection

Charge injection for both internal ASIC and external stimulus. The external charge injection uses capacitors that were measured with a precision meter to increase the accuracy of the sensitivity calculation. The charge injection board will allow charge to be injected into 4 of the 32 FEB channels.

### ***Verify correct power and power consumption. - Done***

Check the analog voltage is within the specified range.

### ***Temperature - Done***

Verify the temperature reading .

### ***TECC - Done***

A TECC test circuit is placed on the TECC connector to verify the DACs, ADC, Enable signal and voltages are operational. Serial Number - not yet tested

Verify the Serial number is properly written.

### ***High Voltage - not yet tested***

Sweep the high voltage regulator and measure the output at the APD carrier. Calculate the linear fit and the residuals.