Preamp Impulse Response

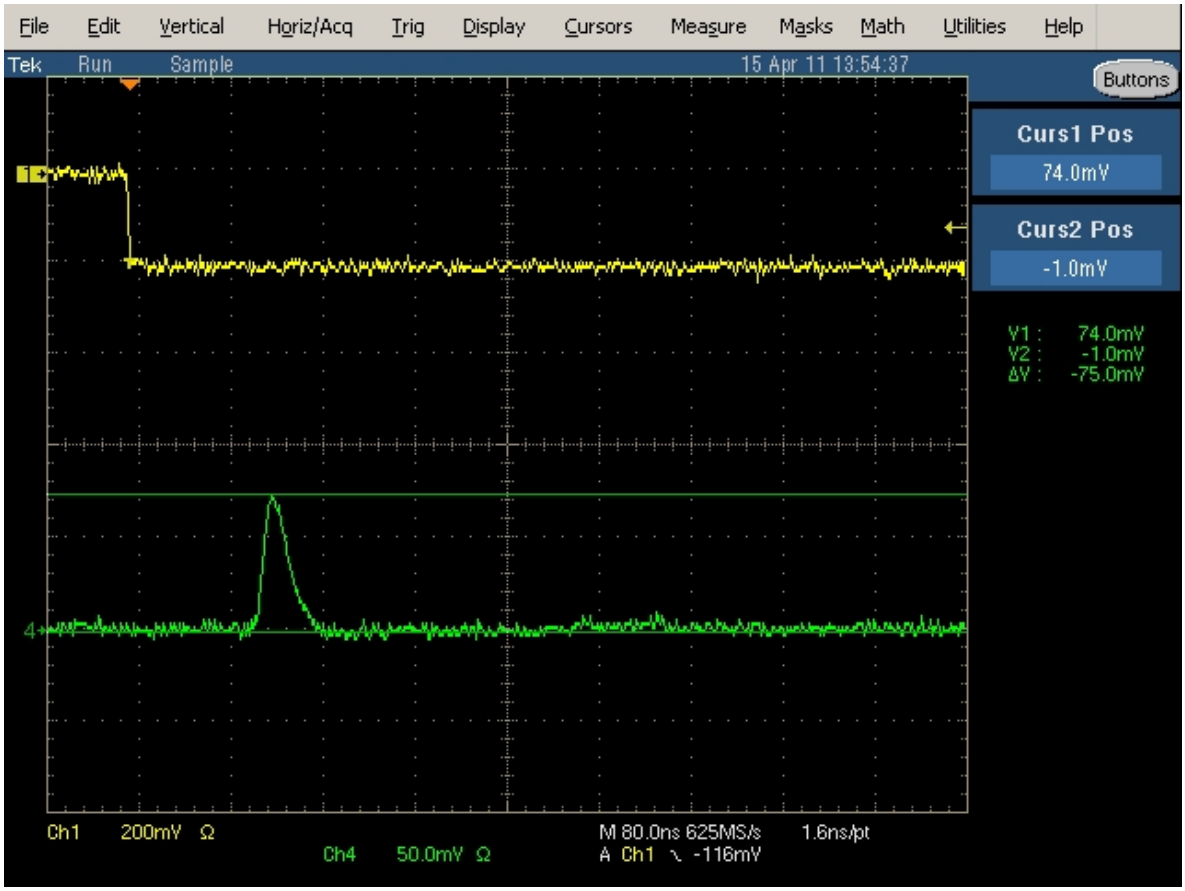
FJB, 17 APR 2011, JLab

The following pulses were obtained with 18 meters of cable, terminated differentially into 100 Ohm, measured with a differential probe and with the preamp configured in three modes:

1. CDC with back-terminating resistor pull-ups, Gain=0.57 mV/fC. (Default)
2. CDC without back-terminating resistor pull-ups, Gain=0.57 mV/fC. (New)
3. FDC anodes with back-terminating resistor pull-ups, Gain=2.6 mV/fC. (Default)

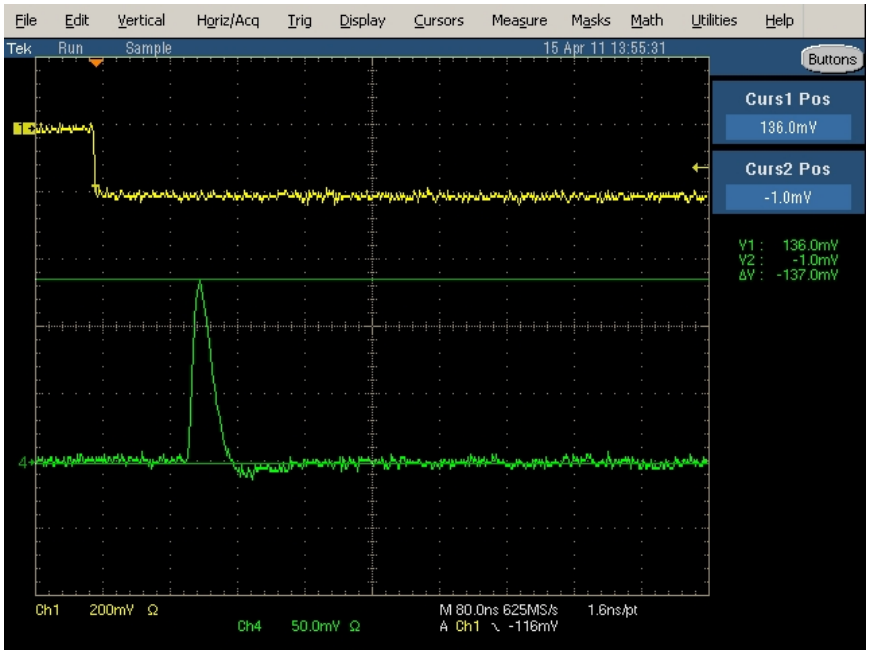
Details about the configuration settings can be found on Table 2 of GlueX-doc-1364 (second row for the CDC and sixth row for the FDC anodes).

1. **CDC with back-terminating resistor pull-ups, Gain=0.57 mV/fC.**



Qin=200 fC, Cable attenuation (18 m)=0.57, rise time=16 ns, Vd=75 mV.

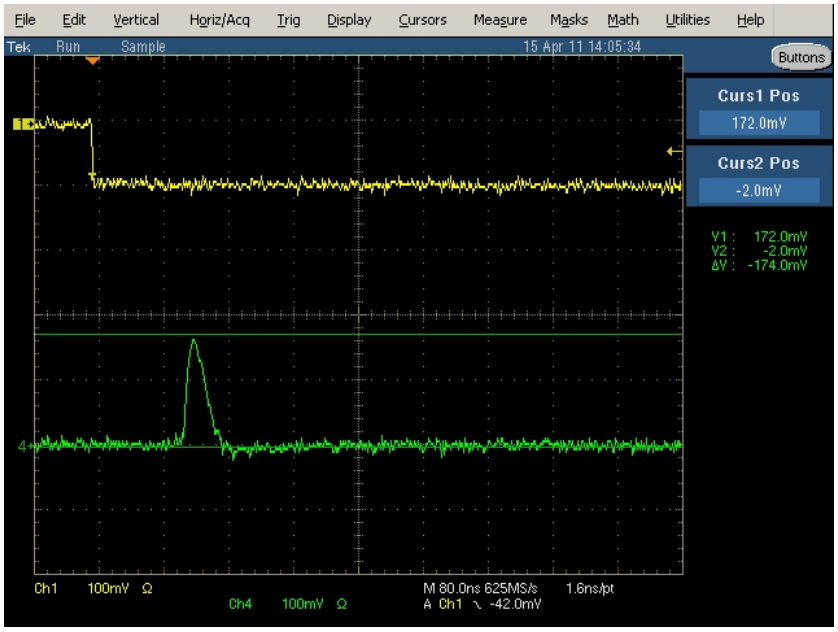
2. **CDC without back-terminating resistor pull-ups, Gain=0.57 mV/fC.**



Qin=200 fC, Cable attenuation (18 m)=0.57, rise time=16 ns, Vd=137 mV.

I measured the preamp response to be similar for the CDC configuration with and without back-termination resistors, except for the approximate doubling of the amplitude. This is, the linearity remains the same.

3. **FDC anodes with back-terminating resistor pull-ups, Gain=2.6 mV/fC.**



Qin=100 fC, Cable attenuation (18 m)=0.57, rise time=16 ns, Vd=174 mV.