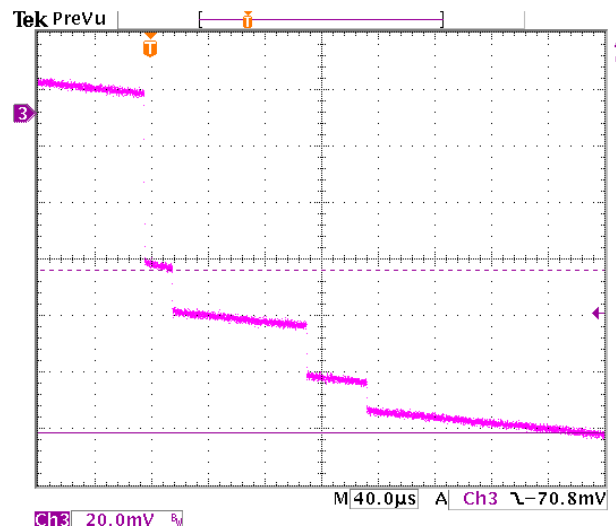
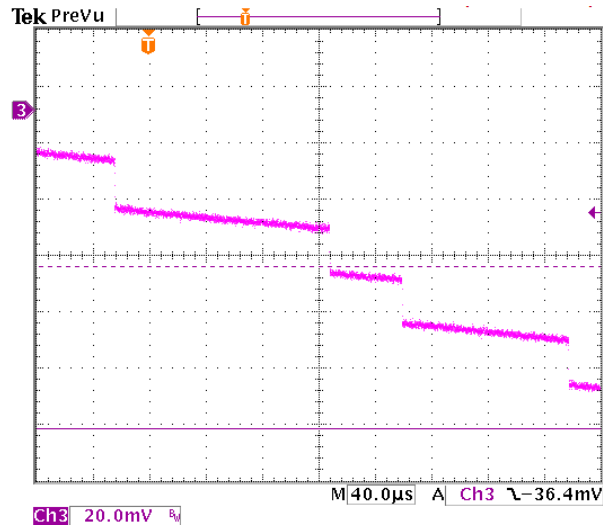
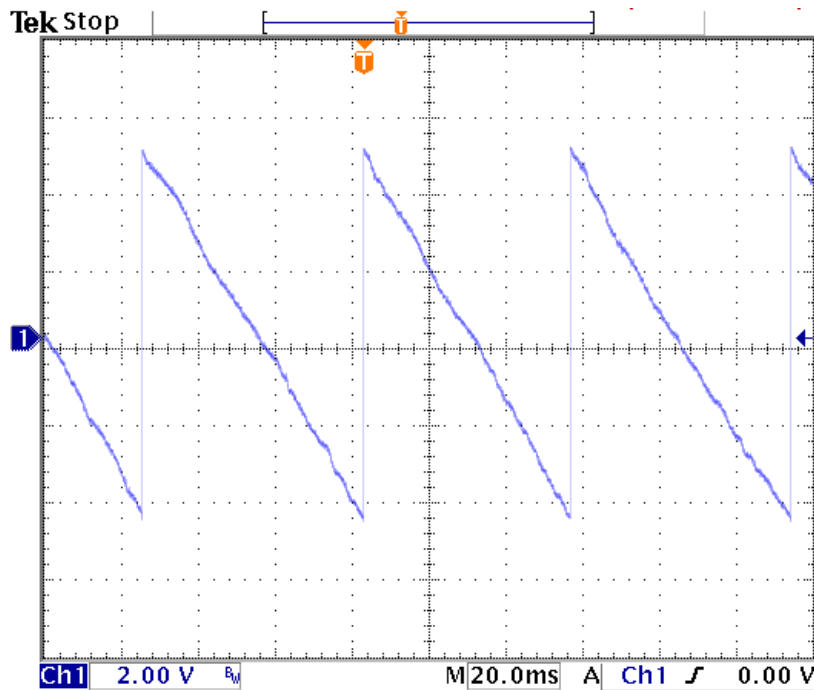


Typical CdTe Reset Pulses

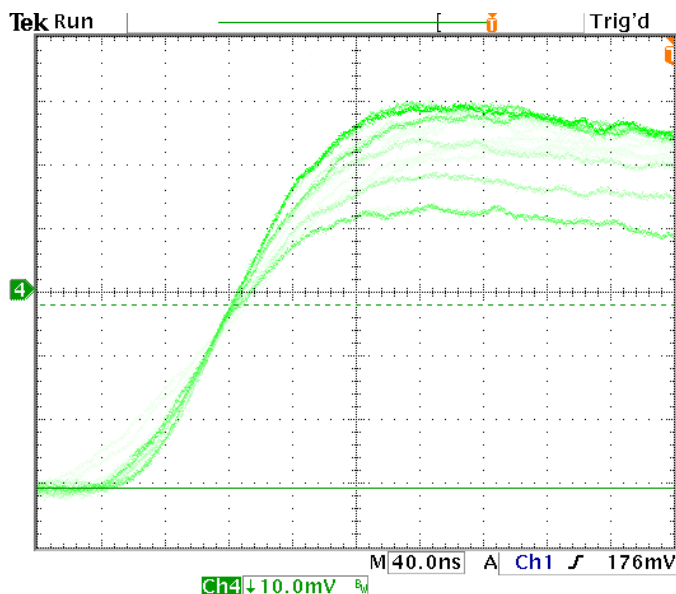
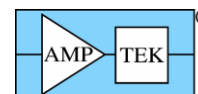


Preamplifier outputs. These traces illustrate typical output pulses with a CdTe reset detector, measured ^{109}Cd . Most of the pulses are 22.1 keV; the large step on the right is 88 keV. Each X-ray interaction results in a negative going step of $\sim 0.7 \text{ mV/keV}$

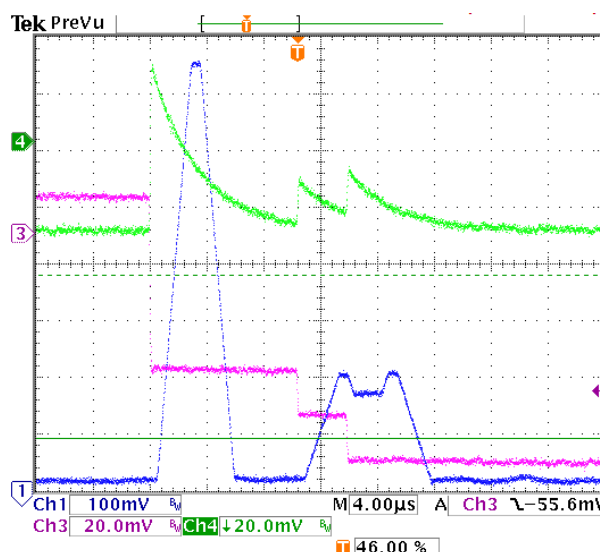
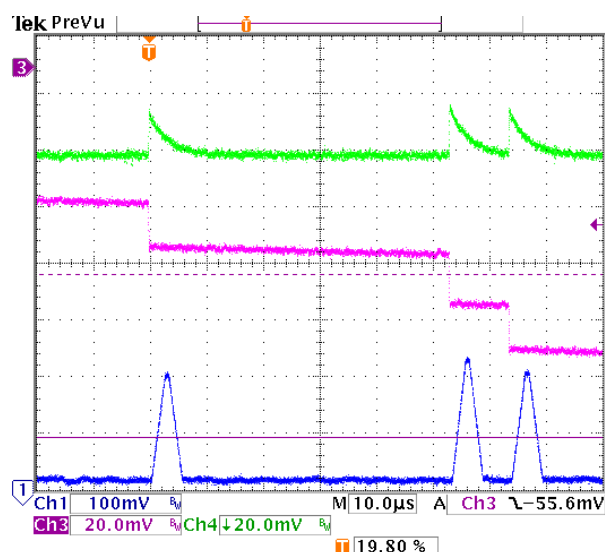


Preamplifier output. This trace also shows the preamp output but on a different voltage and time scale to illustrate the reset. The small steps from each signal integrate towards the negative rail, where a reset signal is generated. This results in a sawtooth of several volt amplitude. The period depends on the total current through the detector (signal current plus leakage current).

This was measured using an XR100, which has a reset range of about $\pm 5\text{V}$. The PA210 and PA230 have reset ranges of about $\pm 2.5\text{V}$.



Preamplifier risetime. The trace shows multiple pulses on a short time scale. The risetime is typically about 200ns. The total collection time from the holes, however, can be 400 ns.



Signals. These traces show the preamplifier output (magenta), the input to the ADC (green) and the shaped output (dark blue) for typical pulses. The trace on the left shows three pulses which are well separated in time. The plot on the right shows several different traces.

Note that the ADC input has an offset of approximately 200 mV, with positive going pulses exhibiting an exponential 3.2 μ s tail. A 1V step into the ADC corresponds to a full scale event in the histogram.