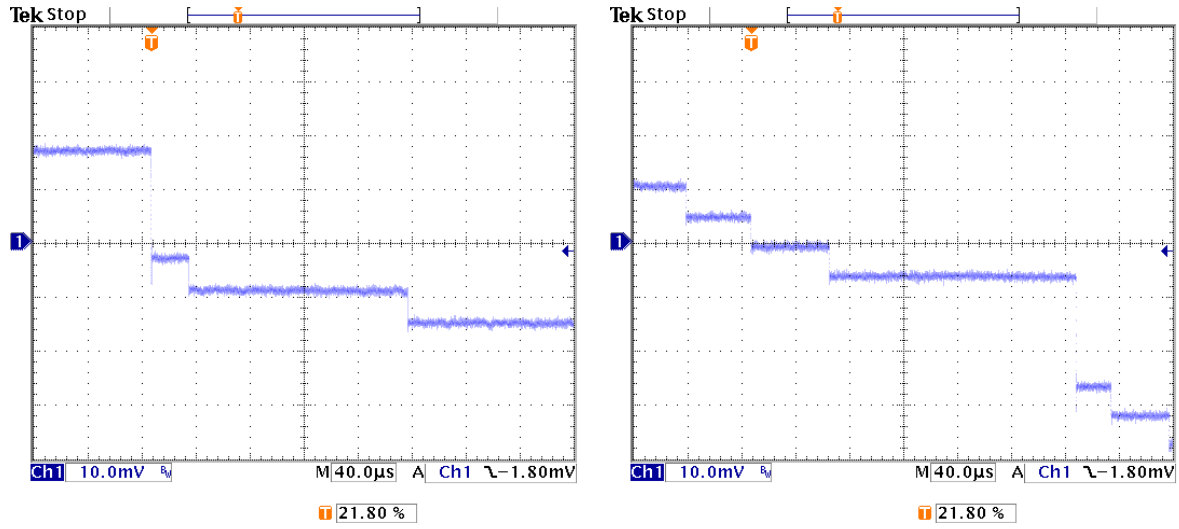
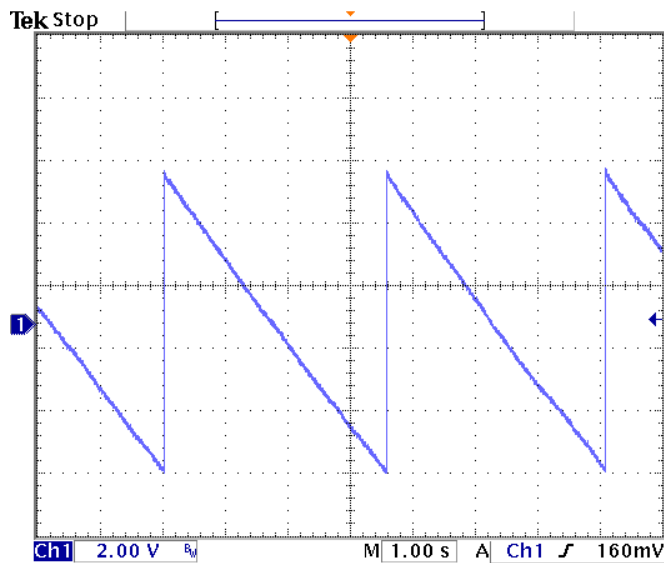


Typical SiPIN Pulses

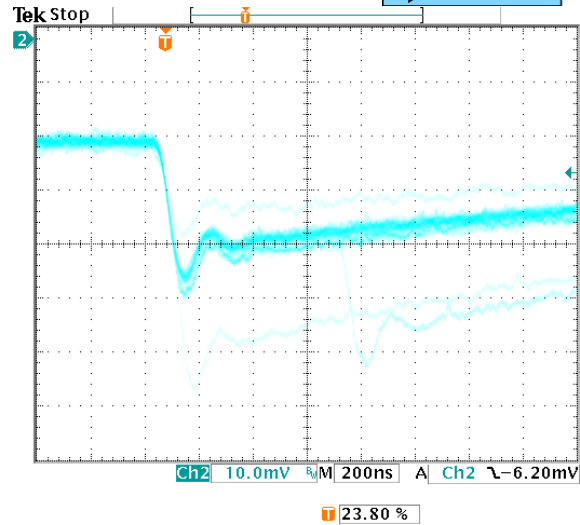
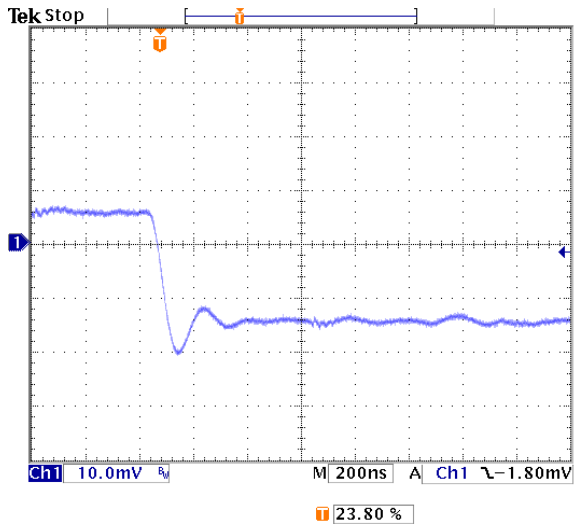
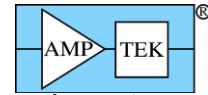


Preamplifier outputs. These traces illustrate typical output pulses with a SiPIN detector, measured using 5.89 and 22.1 keV X-rays. Each X-ray interaction results in a negative going step of ~ 1 mV/keV

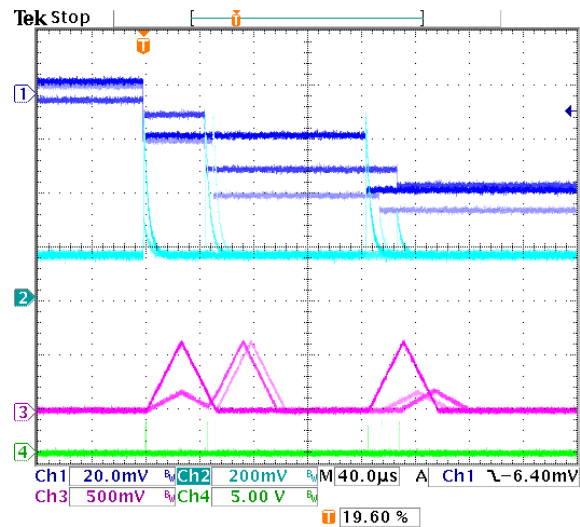
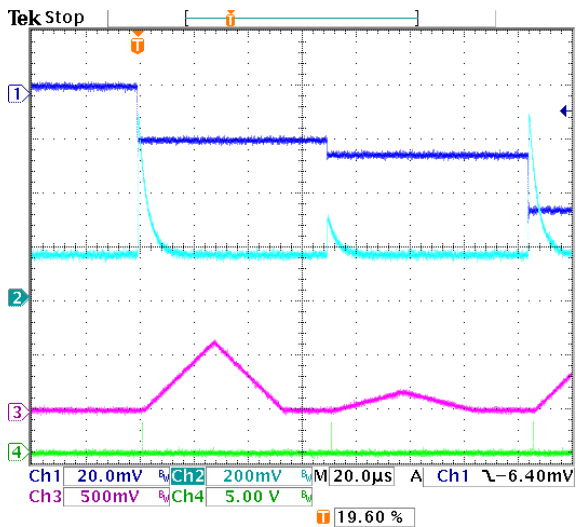


Preamplifier output. This trace also shows the preamp output but on a different voltage and time scale to illustrate the reset. The small steps from each signal integrate towards the negative rail, where a reset signal is generated. This results in a sawtooth of several volt amplitude. The period depends 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 ± 5 V. The PA210 and PA230 have reset ranges of about ± 2.5 V.



Preamplifier risetime. The plot on the left shows the trace from the preamplifier for a single pulse at a short time scale, while the trace on the right shows the AC coupled signal from several pulses.



Signals. These traces show the preamplifier output (dark blue), the input to the ADC (light blue) and the shaped output (magenta) 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.