

Experimental Safety Assessment Document (ESAD)  
for Hall A Experiment E00-114  
June 6, 2005

The HAPPEX Helium experiment is scheduled to run from July 7 through Aug 31, 2005. The experiment uses the Hall A base equipment, as well as specialized equipment for parity experiments. Specifically, the experiment will use:

- The standard Hall A beamline, as described in the Hall A OSP.
- The standard Hall A Compton Polarimeter, as described in the Hall A OSP.
- The helium cryotarget using the 20cm cell. Trained target operators are required for each shift. The target operators are trained on safety related issues.
- The two High-Resolution Spectrometers (HRS) in the 6 degrees configuration with septum magnets, as described in the Hall A OSP
- The Standard HRS detector packages, also described in the Hall A OSP.
- In each HRS, a total-absorption brass-quartz Cerenkov detector will be installed to integrate scattered electrons in each helicity period. This is the Saclay electron detector. There are no safety issues related to this (hence no TOSP), but instructions for operation will be provided in the counting room.
- In the scattering chamber we will sometimes use a water cell target. This target is used for optics calibrations. It was used in the 2004 run and no TOSP is required.
- In the scattering chamber will be the new “sweep” magnet, located just after the target and before the septum. The purpose is to sweep away low-energy background and reduce the heating of the septum magnet. A TOSP was written.

- In each HRS, a small quartz detector mounted on an X-Y scanning table will be deployed to periodically measure  $Q^2$  at high rates. The quartz detector is an integrating Cerenkov detector attached to a PMT. This is the  $Q^2$  profile scanner built by the University of Massachusetts. As for the previous bullet, no TOSP was required.
- A luminosity monitor has been installed near the beamline. It was new in the 2004 run. It is a set of 10 quartz blocks attached via air light guides to PMTs. No TOSP was required.