AWAKE CERN-UCL spectrometer meetings

Present: Aurelie, Bart, Stefano (CERN); Lawrence, Matthew (UCL)

Agenda

1. Overall spectrometer design and simulations - Lawrence
2. Optical line design - Stefano/Bart
3. Test planning (what, where and how will we test the system) - Bart/All
4. Overall schedule to completion - Matthew/All
5. Miscellaneous - All

1.

- Gave an overall description of what is simulated.
- Described simulations done to estimate resolution and signal over background.
-> Include modulation diagnostics which are between plasma and quadrupoles even though they may be retracted for some of electron running.

2. & 3.

- No detailed calculations yet but sticking to mirrors as baseline.
- Start from rough design of line and then look at mirror quality needed.
- Then tests of mirrors and line using camera.
- Tests using PHIN with spectrometer, screen, optical line and camera.
-> Lawrence to check if 5.5 MeV beam is suitable. Should be as energy loss should be the same as at GeV.
-> Stefano to provide PHIN beam parameters.

- Camera discussion
  - Our Andor iStar camera will definitely do the job. If we want a spare, can we get a lower spec. ?
  - Do we need gating ? need ns speed ? Cost difference of 50k versus 20-30k.
  -> Assume the Andor iStar camera as default for the optical line as we have it.

- Camera lens
  - For tests, we should not buy the big lens initially.

- Compressed air
  -> May need for filters. Stefano to check have requested.

4.

- Camera needs to be in tunnel but exact position needs to be defined. Alcove is ruled out due to radiation. So June 2015 is okay for defining it.

-> Installation of optical line needs to be later, at same time or after vacuum chamber installation (Dec/2016). Camera and associated DAQ to same date as installation.

5.

-> Stefano will ask Edda about having a spectrometer folder on the AWAKE indico page for this and future meetings.

-> Next meeting, Thursday 30 April at 15:00 CERN time