Table of Contents

Installation (0th Week)......................................................................................................................................1

Shift Plan (1st Week).........................................................................................................................................2
  Log from 21/2/2008........................................................................................................................................2
  Friday 22/2/2008........................................................................................................................................3

Proposed Shift Plan (2nd Week) - to be discussed..........................................................................................5
  Log from 25/2/2008 and onwards...........................................................................................................5
Installation (0th Week)

- Installation in extraction line
- Laying cables
- PC installation (inc. network)
- Checking everything works
- Check PC readout with ATF
- Investigate microscope options
Shift Plan (1st Week)

- Basic sample parameters: max. of 40 y strips, with 200um separation in x. Vertical spacing within a strip should be 100um.
- For scanning operation, to move 8000um in 80 steps of 100um, needs speed of 100um*0.78Hz, i.e. 0.078mm/s.

Log from 21/2/2008

- James has set up optics as well as was possible. Configuration saved as: set08feb21_2249.dat
- Charge is approx. 1.5x10^10,
- Beam size measured at MW2X, MW3X, data files not yet pulled across from ATF control system:
- Estimate of beam size at target is sig_x, sig_y = 20, 10 um^2
- Find edges of sample, at 0.78Hz, charge approx. 1.5 e10.
- Found lower left edge. Some small rotation of sample (see screen shot from ~2345).

- Strip 1 3mm from left hand edge, starting with sample above beam, then translated sample down by 6mm, when it reached end of travel, beam turned off from ATF control.
- We actually ran first strip at 0.078mm/s, even though rep rate was 1.56 Hz, hence samples are only spaced by ~50um in y.
- Sample then moved vertically, by 6 mm to clear from beam position for when beam is next on.
- We decided to turn beam on below sample and turn off at end of travel (on target), ie moving from A to B in the figure below. This is because beam position is expected to be more unstable when first turned on, possibly moving around by unusually large amounts, scattering bunches across the sample.
Strip 2 moved sample left by 200um. Keep rep rate 1.56 Hz, but adjust translation speed to 0.156mm/s.

Strip 3 moved sample left by 200um. Keep rep rate 1.56 Hz, also with translation speed to 0.156mm/s.

Next, attempt to hit single spot multiple times

- Do this on lower left edge (exposed sample, underneath sample holder):
  - Move sample down approx. 1mm above lower edge, onto exposed sample underneath the thick sample holder.
  - Move sample towards right ~500um, then after approx. 5 bunches at same location, move further 500um horizontally in same direction, then after approx. 10 bunches at next location, translate 500um horizontally, then approx. 20 bunches, then translate off edge of sample. Seen as horizontal series of red dots, in above figure.

Next, Luis’ mega sample, in which he makes a fourth vertical strip, well separated horizontally from strip 3. This translates sample vertically at a rate of 0.5mm/s, stopping 10 times and placing approx. 10 bunches in steps of 1mm.

Some small concern that there may be slippage of horizontal motor or beam movement, to be investigated further.

Friday 22/2/2008

- Swapped polarity of quadrupole QD6X (with Terenuma-san), took approx. 15 mins.
- Expected to improve spot size at target. Use the 1300-1700 slot to do this.
• Charges achieved of $1.4\text{e}10$.

• Small modifications to labview vi made. Continue with study of beam size optimisation after quadrupole polarity reversed, as predicted to allow further spot size optimisation.

• Beam was less stable than expected, found not possible to improve spot size usefully. Plan of campaign for 26/2??

• Sample was removed from vessel at the end of the beam on Friday. Checked with Terenuma-san about residual activity, found below allowed limits, so swap made and sample #1 boxed up and put into cabin outside of Assembly Hall (George's desk). We will take this to the workshop on 25 Feb for inspection. Mark will work on list of expected impact sites using BPMs which are necessary input for microscope operator.
Proposed Shift Plan (2nd Week) - to be discussed

Similar to first week but with new sample.

- We need to compare single bunch operation with continuous, understand how stable position is shortly after shutter opened in single pulse mode.
- We do need to reduce bunch size, which means more optics work.
- Use multiple bunch operation, as per 21/2, to make 1-2 strips of hits
- Follow with **first use of single pulse operation**
- Repeat with 1-2 strips of continuous operation hits, all of 3-5 with same beam size/charge.
- Move onto next charge of beam size configuration.
- Last shift (Thurs 28 or Fri 29): return optics to nominal settings, access to remove second sample and all equipment from vacuum vessel.

Log from 25/2/2008 and onwards

- See and use new RunLogBook pages