FETS Meeting:
Warwick Physics Department, 5th floor, Room 523 - 31st July 2013

Present: J. Pozimski, A. Letchford, M. Dudman, D. Faircloth, S. Lawrie, S. Alsari, S. Gibson, J. Back, M. Aslaninejad, M. Clarke-Gayther, C. Plostinar, S. Jolly, R. D'Arcy, P. Savage

Apologies: A. Bosco, G. Boorman, C. Gabor, K. Kruchinin, P. Posocco,

Circulation: All

Next meeting date: 28th August 2013 – RAL

Administration

1. There is a budget of 510K for 2013 / 2014. This is made up of 280K capital, 150K resources and 80K unnamed resource. A spending review is available on the wiki page.
2. A potential delivery time of six months for RF components was discussed. It was suggested that orders should be placed by the end of October 2013 to ensure it is invoiced before the end of the financial year.

MOU

1. A meeting will be taking place at RAL on the 16th/17th July to discuss diagnostics.
2. MOU will include the exchange of information, design and drawings of the following:
    a) BPM strip line design.
    b) Laser based ion beam diagnostics.
    c) Re-bunching cavity.
    d) Beam dump.
    e) Space charge compensation of high power H- Beams.
3. One of CERN's BPM's will be loaned for testing at RAL.
4. Final MOU agreement will be approximately three pages of text that will need to be signed by all FETS partners. This could be time consuming therefore it was asked that the administration departments at each establishment be notified to speed up the process.
5. Everyone was reminded to update their relevant sections on the webpage.

RFQ Publication

S. Jolly informed the group that the RFQ paper deadline is September 2013 therefore required changes should be submitted in the next two weeks. S. Jolly will not have the time to rewrite articles therefore anything submitted should be the final draft.

Ion Source (D. Faircloth)

1. The new cold box has been installed with new larger magnetic inserts.
2. Some machining is required to improve the fit between components.
3. Standard setting will be installed in the next week to progress solenoid tests.

VESPA (S. Lawrie)

1. Test area being installed with completion planned for September.
2. FETS budget has not been used for this work yet.
3. It is hoped that VESPA is established by FETS completion date.

LEBT (J. Back)

1. Simulations using data from C. Gabor are being run to try and match results.
2. If repeatability can be achieved then confidence can be gained in data.
3. Each solenoid has movement in all axis. P. Savage will use J. Back's alignment error to work out a method of adjustment in the next three months. A. Hooper will be asked to check alignment.

RFQ Injection

1. The distance from the RFQ to the beam pipe is fixed.
2. The extension of the beam pipe could be done via a welded piece, although this area would not be suitable for an o ring seal unless weld is ground / machined flat.
3. The final length is to be decided.

RFQ (A. Letchford)

1. A. Letchford gave a presentation on the effect of vane modulation shape on RFQ frequency.

RFQ (P. Savage)

1. The dowel blocks, required to finish machining section one, are being made at Imperial College and will be taken to NAB when completed.
2. Issues with head alignment at NAB are now resolved allowing machining to commence.
3. There have been issues with available workshop effort at Imperial College due to commitment to other projects. It is now possible to get this effort when required.
4. Frequency field flatness tests may be required.
5. Bead pull tests are to be arranged. This would take place through each quadrant as well as the centre of the RFQ section.

RF (S. Alsari)

1. S. Alsari needs the extra RF waveguide sections so they can be ordered. If there are off the shelf parts available at reasonable price (£200), it was suggested they be purchased to be used if required.
2. There will be a meeting in the next two weeks to finalise the specification of the RF power supplies.
3. It may be that the purchase of these will warrant a single tender case, which will require the submission of the correct paperwork.
4. Low power specification should be defined, highlighting components that could be purchased.
5. The Re-buncher may run on an open loop, but may require an analogue based system with feedback. This should form a discussion at the next FETS meeting.
6. There is no requirement for a circulator to protect the amplifiers.

RF / Shielding (M. Dudman)

1. M. Dudman has had a meeting with T. Pike and confirmed that he is able to work on the shielding design and installation. T. Pike will require details of services entering the block house and any air conditioning system requirements.
2. M. Dudman will set up a meeting with the Survey department to discuss the RF installation.

Beam Diagnostic

BPM (R. Darc'y)

1. Apart from the BPM's it was confirmed that there was no requirement for any large expenditure for beam diagnostics.
2. Concern was expressed over the MOU with CERN and the loan of any laser equipment. It may be that one could be loaned from ISIS for use on FETS and S. Gibson was asked to speak to S. Payne to see if this is possible.
3. NTG do not have an off the shelf button that could be loaned for tests. A quote has been asked for, along with information on the strip line which can be compared to the CERN design.

Laser (S. Gibson)

1. Laser and beam delivery has been tested and is on schedule to be shipped to CERN in September.
2. MOU Laser wire has been drafted with CERN.
3. FETS laser has been shipped back to the manufacture for repairs and a replacement model has been issued.
4. So far, 50% efficiency has been achieved, which is expected to rise to 75%.
5. Interlocked enclosure has been built and enclosure to prevent 'in air' laser is being designed.

DAQ

1. T. Hoffman and G. Boorman have discussed specifications.
2. Operation of system is to be documented.
3. FPGA and Digitiser have been delivered to RAL and now awaiting delivery of breakout box. FPGA code has been developed and will now be tested.
4. Button and strip line BPM will be tested once received from CERN. This raised a question about arrangements for insurance and delivery of loaned components.

3D Dipole model and particle tracking (D. Faircloth)

1. CAD model has been generated.
2. The amps required for 0.52T and 0.4318T have been calculated.
3. There was a discussion on how it will be manufactured and the choice of material. It was thought the completed model could be presented to a manufacturer for advice. Are large billets of magnetic steel available so it can be machined from one piece?

MEBT (J. Pozimski)

1. There was a meeting at RAL on the 18th July 2013 where the two lattices were compared. Seven cases in total were evaluated, each with a different specification.
2. Problems / issues were identified for discussion at the next meeting in approximately two weeks' time.
3. A decision will be made using a list of criteria including performance, diagnostic and commissioning.

Actions:

1. Everybody to look at the web page to see if their section is up to date.
2. Everyone to submit their changes for the RFQ paper to S. Jolly.
3. P. Savage to look at J. Backs alignment error to work out method of adjustment.
4. M. Dudman to set up meeting with the survey department.
5. S. Gibson to speak to S. Payne regarding loan of equipment.
6. R. Darc'y to follow up quotes.
7. J. Pozimski to organise the next MEBT meeting.