FETS Meeting:

RAL, R2, CR6 – 28th August 2013

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

Apologies: A. Bosco, K. Kruchinin, P. Posocco, C. Plostinar, J. Back,

Circulation: All

Next meeting date: 25th September 2013 – RAL

Administration

1. There is a budget of 510K for 2013 / 2014. Remaining spend includes 270K capital, 150K resources and 90K unnamed resource. A spending review is available on the wiki page.
2. It has been confirmed that the outstanding £40K spend on the shielding blocks was deducted from last year's budget.
3. Everyone was reminded to ensure they book to the correct project code, STGA00091 01. This is the only code that has been used for the last two years.
4. To keep capital spending to a minimum, orders should be kept below 10K and large orders could be broken down to do this.
5. There was a reminder that overseas travel requires authorisation.
6. Everyone should consider their spending requests.
7. The RFQ paper has been sent for Publication.
8. Everyone was asked to add their details to the Gmail list.

MOU

1. The MOU is in the hands of the lawyers. Some changes have been requested including the fact that FETS is not a legal entity.

MEBT

1. There was a discussion of the BPM positions at the exit of the RFQ and the entrance of the MEBT and also the enlargement of the cavity from 15mm to 16mm.
2. It was thought that three cavities should be bought and that nine quads would be required.
3. P. Savage has circulated the two possible MEBT schemes with results to everyone. People were asked, if they wanted to add to the discussion, to respond to the email.
4. S. Lawrie asked if it was worth spending money on components to increase the flexibility of the MEBT. J. Pozimski said there was enough money in the budget to buy the components and if C. Plostinar's scheme is used, money could be saved due to the lower voltages.
5. To demonstrate fast chopping, measurements will be required. It will need to be decided how this will be achieved.

6. M. Clarke-Gather thought Fast toroid's and strip lines are two possible options and that the most sensitive, dynamic range should be used to offer the greatest flexibility. However if noise is taken into account it may cancel out the difference which would make the cheaper option viable. Tests could be conducted to see which signals can be detected.
7. An eight Bit scope has been purchased by Imperial College and can be used with BPM.
8. The position should be as close as possible to the beam dump or just after the quad. It was thought that 107mm space would not be enough and the minimum should be 110mm. An option may be a fast toroid in the 107mm gap and a BPM in the 247mm gap. Another toroid and BPM may be required at the end of the MEBT but space will be an issue. The original decision was to use a slow toroid with a BPM.
9. The Proven SNS system could be investigated.
10. It was agreed to look at the feasibility of fitting in a fast toroid.
11. The lattice comparisons showed the main difference is beam loss.
12. The cavities 15mm and 16mm radius can be investigated, comparing the increase between the wall and beam and the increase RF power that will be needed. The purchase of the RF power supplies will have to wait until this decision has been made.
13. Decision made, using C. Plostinar' s data, that Quad length will be 80mm. S. Lawrie to progress order and A. Letchford to do the modelling.
14. Chopper length of 600mm was agreed although an increase in power may be required at a later date at an additional cost.
15. An order for the 6 off quads before and after the laser diagnostics could be placed.
16. P. Savage gave an update on his summer student's progress. A presentation will be given at the next meeting.

Beam Diagnostic

Scintillator results – C. Gabor will give a presentation at the next meeting.

Laser (S. Gibson)

1. The manufacturers are not able to replicate the peak power results achieved at RHUL so they have agreed to do more tests.
2. The efficiency has been improved by the introduction of lens in the coupling.
3. Assembly will be mounted in the laser box and a shutter has been ordered.
4. A loan agreement will be required prior to the laser going to CERN.

DAQ (G. Boorman)

1. A copy of LINAC 4 BPM front end could be used.
2. Hardware has now arrived and will be tested.
3. CERN will produce 6 off PCB's
4. Next steps are:
    a. Test FPGA HW using RF source.
    b. Obtain PCB's from CERN.
    c. Test electronics and FPGA together.
    d. Test complete system using test jig at CERN.

BPM (S. Jolly)

1. MOU is holding up progression.
2. 72mm is perfect at 3Mev with space of 149mm.
3. 60mm is not as compatible but length of 110mm is the same as A. Letchford's design. This design should be evaluated.
4. There is a certain amount of confidence that CERN's BPM works and it is hoped that tests will prove it.
5. NTG have quoted 6.5K Euros for a button that operates under vacuum. May be cheaper if more than one is ordered.
6. Tests at CERN should not incur costs but will depend on MOU. Tests may be able to proceed before the MOU is signed.
7. The positioning of the racks and lengths of cables will be required.

RF / Shielding (M. Dudman)

1. RF layout is nearly complete. Extra dummy load on loan from the ESS will need to be added to configuration to enable full klystron test.
2. M. Dudman to speak to S. Alsari to confirm RF components that need to be ordered.
3. M. Dudman confirmed T. Pike is working on the design and will look at layout, entrance / exits and roof requirements.
4. It was noted that people needed to know what space was available in order to start planning where components could fit.

RF (S. Alsari)

1. Negotiations are continuing with the manufacturer's power supply quotes. If required, these quotes can be re-specified to take into account an increase of power. The order will not be processed until a decision has been made on power specifications.
2. Extra power may be required due to an increase of cavity bore size which is yet to be decided.
3. Power supplies will be supplied in either one or two racks and will be air cooled not water cooled.

RFQ (P. Savage)

1. Section one is nearly ready for delivery from NAB to RAL for inspection. D. Wilsher is to be notified of delivery.

Ion Source and LEBT (C. Gabor)

1. Ion source configuration has been changed.
2. It was found that the insulator had melted but has now been repaired.
3. Beam was achieved last Friday but was found to be mis-steering. The shims have been removed and testing will commence tomorrow.
4. So far there have been no conclusive results with the solenoid / dipole issue.

Chopper (M. Clarke-Gayther)

1. Simulated comparisons of TD and FD strip line have been done. The planar 01 design appears to be the best.
2. M. Clarke-Gayther gave a presentation but ran out of time. He will finish the presentation at the next meeting.

Actions:

1. Everybody to ensure their name is added to the Gmail list.
2. M. Dudman to set up meeting with S. Alsari to discuss RF components order.
3. S. Gibson to speak to S. Payne regarding loan of equipment.
4. G. Boorman to progress DAQ tests.
5. M. Dudman / P. Savage to arrange transport of RFQ and notify D. Wilsher.
6. C. Gabor to progress pencil beam tests.
7. J. Pozimski to organise the next MEBT meeting.