FETS Meeting:

RAL, R3, CR11 – 20th November 2013

Present: J. Pozimski, A. Letchford, P. Savage, M. Dudman, S. Lawrie, S. Gibson, D. Faircloth, M. Clarke-Gayther, S. Alsari, S. Jolly, J. Back, C. Gabor, A. Bosco, K. Kruchinin, M. Aslaninejad.

Apologies: P. Posocco, G. Boorman, C. Plostinar.

Circulation: All

Next meeting date: 18th December 2013 – RAL

Administration

1. The OsC meeting is on the 5th of December 2013 and FETS will be represented by members of the executive board. If other members of FETS want to attend then they should inform J. Pozimski.
2. Everyone was asked to look at chapter three, publication list of the OsC paperwork and update.
3. The 5th December is also the abstract deadline for IPAC 2014.

Finances

1. Capital spend is on target and allocation of resource spend is being investigated.

MOU

1. FETS is not a legal entity and can therefore not sign the MOU with CERN. Each establishment to look at their legal position and sign the MOU independently.
2. One option may be that everyone agrees that ISIS can act on their behalf and sign the agreement. This would reduce the overall number of agreements.
3. S. Jolly indicated that he had not seen any documentation. J. Pozimski agreed to forward him a copy of the documents so far.

Minutes

1. None

AOB

1. None

Ion Source and LEBT (S. Lawrie)

1. At present the repairs to the extract power supply, that failed during testing are commencing. M. Perkins is looking into the possible causes of failure.
2. The plan is to get full beam, 22Kv aligned and reliable by end of December 2014.

Ion Source and LEBT (C. Gabor)

1. Alignment of beam is looking good but improved mechanical design, dowel pin location is required to prevent damage during disassembly / assembly.
2. D. Faircloth, S. Lawrie, and C. Gabor to look into the problem.

Ion Source and LEBT (J. Back)

1. J. Back gave a presentation on the LEBT beam steering using pencil beam data to look at the effect on the dipoles.
2. It appears the coils are not aligned with the yoke. In the case of the ESS dipoles it may not be possible to strip down and rectify the alignment issues.
3. FETS data infers that the beam can be steered quite well using dipoles, although settings may be difficult to obtain.
4. It is anticipated that there will be a period of 10 to 15 minutes set up time, tuning the dipoles on beam start up.

Beam Diagnostic

BPM (S. jolly)

1. G. Boorman, R. Darcy and S. Jolly visited CERN for two days looking at the strip line designs and RF boards. Five different designs were observed and there are plans to test CERN's spare BPM at RHUL. BPM will only be used in spaces greater than 100mm due to its outer dimensions.
2. Using a wire test electrical and mechanical centres were compared and results showed them to be within 1mm tolerance.
3. G. Boorman is building his own moving wire jig and once the MOU is in place tests can commence on the BPM.
4. Design allows for a flange on one side and bellows on the other if required.
5. R. Darcy has now joined Fermilab.
6. S. Jolly asked for it to be noted that the current MEBT design will not accommodate the CERN BPM in all locations due to space restrictions.

DAQ (J. Pozimski on behalf of G. Boorman)

1. G. Boorman has requested to be able to purchase a digitizer at a cost of £3200. It was discussed if this was needed or whether the existing oscilloscopes could be used as they have already been purchased.
2. A system exists at RAL which looks at the toroids.
3. It was suggested that G. Boorman be allowed to justify his request.

Laser (C. Gabor)

1. C. Gabor gave a presentation on the scintillator work at Fermilab showing details of set up and damage of the scintillator discs.
2. The bead frequency and striking effects on the images need to be resolved.
3. Aluminium oxide should be fine with reasonable lifetime although quantative studies might not be feasible.

Laser (S. Gibson)

1. S. Gibson gave a presentation on the work at CERN.
2. Pre visit tests were conducted at RHUL.
3. Set up issues at CERN with incorrect size of laser box support pillar.
4. Anti-reflective coated window, to prevent back scatter, replaced the standard window.
5. Interlocks and laser shutters were installed and the pulse shape measured.
6. G. Boorman will configure software during the next visit.
7. Once beam is established at CERN and diamond deflector installed, laser tests will commence. Initial test will be done by end of December 2013 with full measurements being completed in January 2014.
8. The laser will be returned by the 31st January 2014.
9. S. Gibson expressed a wish to borrow a PXI crate as G. Boorman needs to work on RHUL's one. S. Payne should be contacted at RAL for this.

RF Amplifiers

1. No Update was given

MEBT

MEBT Layout (S. Jolly)

1. S. Jolly asked to have a discussion on the layout of the MEBT. Diagnostic space is difficult to find in the new layout.
2. Between beam dump 1 and chopper 2 may be the only place with enough space for one BPM.
3. CERNS BPM design is being used as there is no time to do research on BPM. CERN spent three years getting BPM to stage it is now.
4. In terms of particle dynamics, the MEBT may be acceptable to small changes in component position.
5. It may be possible to use one BPM at the end and one in the middle.
6. Button monitor could be an option to fit within the gap available.
7. S. Jolly will concentrate on two off CERN design BPM's.
8. A. Letchford's shortened design should also be progressed using bought in components. It was not clear where effort to do this would come from.

MQP Status (S. Lawrie)

1. Quotes for the quads are due in week commencing 25th November 2013.

Cavity (P. Savage)

1. It has been decided that the cavities will be plated mild steel.
2. Cooling channels will need to be assessed along with sealing arrangements.
3. P. Savage has visited the plating company NITEC but at present does not have a great deal of confidence in them. This is due to incorrect quotes and questions not answered fully.

4. Company has been used to plate tank 4 and could possibly plate another cavity in design at RAL. This process has not been without its problems and FETS should try and learn from these previous efforts.
5. M. Aslaninejad raised a question whether he should be using steel or copper in his simulations.

RF / Shielding (M. Dudman)

1. M. Dudman informed the group that he had created a new shielding layout to make it longer and wider giving the maximum space inside.
2. M. Dudman will now work with T. Pike progressing the shielding roof design and quotes for new shielding components, subject to P. Wright accepting the changes in layout.

RFQ (P. Savage)

1. P. Savage gave an update of the RFQ inspection at RAL. It has had some live assembly to find the optimum position from a tolerance point of view.
2. D. Wilsher is having the CMM machining software updated and will make some comparisons to the results achieved during initial measurements.

Actions:

1. Everyone to look at OsC and update publication list where applicable.
2. Everyone to look at their individual requirements to fulfil the MOU.
3. D. Faircloth, S. Lawrie, and C. Gabor to look into issues with ion source alignment.
4. G. Boorman to design and build moving wire jig.
5. S. Jolly to progress the CERN design BPM.
6. Thought should be given to the progression of the shorter BPM design.
7. S. Lawrie to progress quad quotes.