

FETS Meeting:

RAL, R2, CR6 – 14th May 2014

Present: J. Pozimski, A. Letchford, P. Savage, M. Dudman, S. Lawrie, S. Alsari, C. Gabor, M. Aslaninejad, J. Back, M. Clarke-Gayther, D. Faircloth, S. Gibson, J. Taylor, R. Edgecock

Apologies: A. Bosco, P. Posocco, K. Kruchinin, A. Kurup, G. Boorman, S. Jolly, C. Plostinar,

Circulation: All

Next meeting date: 4th June 2014 – RAL

Administration

1. The budget is not so large this year so spending should be thought of and only used if required. There should not be any unnecessary spending.
2. Work package holders M. C. Gayther and S. Gibson were asked to pass on their task details to M Dudman so they can be added to the project plan.
3. Everyone is responsible for obtaining a radiation badge and pass access before entering R8.
4. It was noted that P. Wright is on sick leave at the moment.
5. J. Back has updated the FETS calendar, thank you.
6. There was a discussion to find out who would be presenting at the conferences in 2014. M. Aslaninejad, S. Jolly, S. Gibson, and S. Lawrie (presenting J. Backs work) would be at IPAC. J. Pozimski expressed a wish for G. Boorman to resubmit paper for IBIC not IPAC.

Ion Source and LEBT (S. Lawrie, D. Faircloth, C. Gabor)

1. Measurements have shown that the best results have been achieved in the time possible.
2. The Chinese extract 25Kv is to be installed
3. J. Taylor offered to help with experiments.
4. Ion source is working and the decompensation electrode has been removed.
5. C. Gabor gave a presentation of the results at 11A, 13A and 15A showing emittance scans.
6. The position at 15A is “quite good”. It appears to be voltage limited so the last solenoid needs a new cable to increase voltage.
7. It was noted that there was only seven weeks left to complete testing before phase one of the shielding assembly starts. More tests will be done until this time.

Shielding / Infrastructure / RF (M. Dudman, A. Letchford, S. Alsari)

1. A second Layout has been produced to incorporate more of the purchased shielding blocks and less bespoke ones.
2. R. Lambert to be consulted on second exit.
3. P. Masterson has disconnected the services to klystron.

4. Extra permanent water feed to be installed for the circulator. D. Couchman has been consulted for confirmation of water flow, specification of flow gauges and running procedure.
5. Circulator support frame is being manufactured with estimated move date being end May 2014 during shutdown.
6. ESS dummy load to be installed after move, prior to full power klystron tests.
7. Still unclear on effort required to move klystron.
8. Coupler design progressed and checked in Microwave Studio. M. Dudman and A. Letchford will have a meeting to discuss progression.
9. S. Lawrie informed the group that D. Couchman will install a water manifold for the MEBT in August 2014. Cooling to the dumps will be via long hoses.
10. A meeting should be arranged to discuss water flow rates to components.
11. A. Letchford to look into the design of the cavity coupler.
12. J. Pozimski told the group that the amplifiers have been delivered without the manuals. These will be delivered in the next week.
13. A single phase power supply will need to be installed to power the amplifiers. M. Dudman was asked to progress this with A. Nobbs.
14. A meeting with Daresbury laboratory should be arranged to look at the control system for the low level RF.
15. S. Lawrie gave the group a breakdown of a meeting that had been arranged with ESSO. They are putting together an estimate to carry out the electrical installation work on FETS.

Beam Diagnostics

1. There is no plan to measure the emittance after the RFQ. Laser diagnostic will be used in about 1.5 years time using testing knowledge gained at CERN.
2. Another option may be the 1mm multi wire slit harp water cooled system set up used on ISIS. The wires are tungsten and should not be destroyed by the beam. The location of the system is not currently known.
3. A document produced by C. Plostinar detailing the RFQ commission will be made available on the website.

BPM test rig (S. Gibson)

1. S. Gibson gave an update on the wire test rig. The hardware has been produced, assembled and first tests complete.
2. A summer student will help with the project for eight weeks.
3. Images of the assembly rig with BPM in position, frequency generator and scope were shown.
4. A clean signal was recorded with little or low noise.
5. Linearity was $< 1\%$.
6. A longer fibre has been obtained for the CERN laser wire 12 MEV tests. There are no new results since the last meeting due to a three week delay in LINAC 4. It is hoped to resume testing in late June when beam is expected.

RFQ (P. Savage)

1. NAB is currently machining section two. Two minor vanes are complete and discrepancies from section one have not been replicated.
2. Second minor vane will be complete in one week followed by the completion of the two major vanes.
3. The use of coolant has improved the finish in all areas except the vane tips where the finish remains the same as section one.
4. It was thought that section two would be assembled at NAB for RF tests before being inspected at RAL. Final length machining will then be done at NAB.
5. It may be possible for D. Wilsher to go to NAB to carry out inspection using their CMM machine.
6. P. Savage will send S. Alsari and or S. Lawrie the CAD model to model the RF results.
7. A question was raised at this stage regarding the cavity tests. There is currently only one spare port and it was thought that adding two extra ports, more loops could be used to complete the tests.
8. A discussion also concluded that the clean tent could be removed and storage / scrapping solutions found for the blue surface tables currently being stored in R8. M. Dudman will contact B. Greenaway to discuss this.

MEBT

MQP (S. Lawrie)

1. S. Lawrie showed the detailed design drawings of the quads to the group.

Engineering

1. The cavity is being progressed by C. Evans who is hoping to present a final design in two week time. A price comparison will be sought for using steel, copper or aluminium.
2. The model of the MEBT vacuum manifold is being worked on. Once complete, effort will be sought to detail before going out for quote.
3. C. Evans will also look at the design of chopper vacuum vessel. P. Savage will talk to M. C. Gayther with regards to dimensional requirements.
4. Information has been passed to C. Densham to enable him to continue looking at the beam dump design.
5. A meeting with A. Hooper should take place to discuss the MEBT component alignment procedure. Will kinematic mounts be used or shims?
6. The cavity unit from VG has not been delivered yet.

Chopper (M. C. Gayther)

1. It was announced that M. C. Gayther will not be retiring in the near future and will stay on the project.

AOB

1. S. Gibson informed the group that a summer student, starting in July 2014, will work on developing the bead pull system.
2. In the students working timescale it may be possible to assemble two sections of RFQ for testing. It is hoped that tests will be conducted at RAL in the inspection department using the CMM machines granite table as a base. This would also be an opportunity for J. Taylor to help, using his experience.
3. The next meeting will be earlier than usual on the 4th June 2014.

Actions:

1. Work package holders should forward task details to M. Dudman for completion of project plan.
2. Everyone is responsible for obtaining a radiation badge and pass access before entering R8.
3. M. Dudman to progress a single phase power supply for RF with A. Nobbs.
4. M. Dudman to progress installation of circulator.
5. M. Dudman to progress shielding design / installation.
6. M. Dudman to progress RF coupler design / manufacture based on CST results.
7. A meeting should be arranged to discuss water flow rates to components.
8. A meeting with Daresbury laboratory should be arranged to look at the control system for the low level RF.
9. P. Savage to send S. Alsari and or S. Lawrie the CAD model to model the RF results.
10. P. Savage to progress RFQ manufacture.
11. P. Savage to progress MEBT engineering details with C. Evans.
12. P. Savage to progress alignment issues for MEBT components.
13. M. Dudman to speak to B. Greenaway with regards to storing / scrapping items.