

## **FETS Meeting:**

**UCL, Room E1, CR11 – 16th April 2014**

**Present:** J. Pozimski, A. Letchford, P. Savage, M. Dudman, S. Lawrie, S. Alsari, C. Gabor, M. Aslaninejad, A. Kurup, J. Back, S. Jolly, C. Plostinar, G. Boorman,

**Apologies:** A. Bosco, P. Posocco, K. Kruchinin, S. Gibson, D. Faircloth, M. Clarke-Gayther

**Circulation:** All

Next meeting date: 14<sup>th</sup> May 2014 – RAL

### Administration

1. Spend is complete for the last financial year.
2. 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.
3. The minutes from the last meeting are on the website.
4. Work package holders were asked to pass on their task details to M Dudman so they can be added to the project plan.
5. Everyone is responsible for obtaining a radiation badge and pass access before entering R8.

### RFQ (P. Savage)

1. The question was raised if machining should continue with section two or re-machine section one?
2. There is not enough material on section two for a test cut therefore it will have to be machined to size.
3. Section two is at NAB whereas section one is at RAL which could impact on the machining / delivery times.
4. Machining of groove could be left depending on inspection results.
5. A decision was made to proceed with section two, no groove, and then conduct frequency tests at NAB to decide if groove is required.
6. It is hoped to machine section two within the next two weeks. Tests should be done in time for OSC meeting so there are two finished machined sections at RAL to show progression.
7. There is a small amount of money outstanding for the completion of the RFQ contract with NAB.
8. The coupler design has progressed and is with A. Letchford to check in Microwave Studio. The depth of antenna in cavity should also be verified.
9. Bead pull apparatus should be put in R8 storage area ready for tests at RAL.
10. Tuning could be achieved in each section but a test on all four joined sections on the beam line will also be required.
11. It might be possible to test two joined sections in RAL inspection to see the effect of removing the end flange. This should give an indication of the accuracy.
12. A. Letchford to present a method of tuning the cavity at the next FETS meeting.
13. It is hoped that the full circulator tests will be carried out by the end of May 2014.

14. RF power supply test to loads should be carried out to ensure they are working. Load and a power meter will need to be sought for this test.

#### MEBT

##### MQP (S. Lawrie)

1. A conceptual design and detailed Gantt chart has been received from the manufacturer.
2. Tests should be completed by September 2014 and order completed by November 2014.
3. The aim is to have the magnets installed on the rails when they arrive, however if conditioning is ongoing, the MEBT components will not be installed.
4. Alignment of components to commence January 2015.
5. The positioning of the dump and feeds should be thought of at this stage.
6. A discussion about doing emittance scans at the end of the RFQ concluded that there would not be an easy solution. However it was thought that it would yield some valuable results, with full measurements following a few months later.

##### Chopper (M. C. Gayther)

1. No Update was given.

##### MEBT Engineering (P. Savage)

1. At a meeting on the 26<sup>th</sup> of March 2014 with the Technology Department the MEBT engineering tasks were discussed. Possible effort was identified for the cavities, vacuum vessels and the chopper beam dump plate.
2. On the 10<sup>th</sup> April a meeting with engineer C. Evans started the process of outlining the specification required for the individual components. This will be subject to the budget being sufficient to allow this to progress.
3. The beam dump design will progress with C. Densham.
4. M. C. Gayther will need to confirm the length of the chopper to define the internal dimensions of the vacuum vessel. A question whether a replaceable scraper in the vessel, rather than potentially scrap the vessel itself, was asked.

##### RF (S. Alsari)

1. It is anticipated that a low level RF meeting will be held to discuss a viable system leaning from knowledge of existing systems and what is actually required. Daresbury Labs have been working on a similar system.

##### Ion Source and LEBT (S. Lawrie, J. Back)

1. The ion source is running with the shortest gap, operating on remote.
2. There is temperature control with a stable source
3. Emittance scans will be taken as soon as possible.
4. A third cable is required due to losses incurred.
5. Measurements will be taken until IPAC.

6. J. Back gave a presentation on the GPT simulations of the LEBT. He showed a table of results for the solenoid current range, the RFQ efficiency and focus length. The results are very encouraging.

#### Shielding / Infrastructure / RF (M. Dudman)

1. A second Layout has been produced to incorporate more of the purchased shielding blocks and less bespoke ones.
2. It's anticipated to do a part build to see how the shielding blocks sit together.
3. R. Lambert to be consulted on second exit.
4. P. Masterson has been consulted on disconnection and reconnection of services to klystron before and after move.
5. Extra permanent water feed to be installed for circulator. D. Couchman has been consulted for confirmation of water flow and specification of flow gauges and running procedure.
6. Support frame being manufactured with estimated move date being end May 2014 during shutdown.
7. ESS dummy load to be installed after move prior to full power klystron tests
8. Still unclear on effort required to move klystron.
9. Coupler design progressed, confirmation with A. Letchford required before making and testing window. Drawings to be detailed if design approved and quotes obtained.

#### Beam Diagnostics

##### BPM test rig (G. Boorman)

1. The test rig is in manufacture, assembly should begin within the next week.
2. The BPM will be investigated to recreate S. Lawrie's results.
3. A summer student that will help with the project starts in May.
4. RAL's BPM design will be detailed and seven off manufactured for the end of June.
5. There is currently space available for another strip line after the last chopper dump. This area is currently undefined at present. It was noted that a strip line could be expensive hence the manufacture of a seventh BPM.
6. The electronics are populated and waiting to be tested and used in conjunction with the test rig.

#### Laser diagnostic

1. No Update was given.

#### AOB

1. It was noted that there are clashes with FETS meetings and conferences in 2014. The dates will be changed to ensure those who wish to attend will be able to.
2. The future of FETS was discussed. Using FETS as a material test facility is not seen as the best possible use. However the OSC committee recommended exploring the various options. The general feeling was to keep it as a test facility.

**Actions:**

1. Everyone should think of their necessary spending requirements.
2. Work package holders should forward task details to M. Dudman.
3. Everyone should obtain a film badge and door pass before entering R8.
4. A. Letchford to run the coupler design through microwave studio.
5. M. Dudman is to progress the button BPM order.
6. P. Savage to progress test machining of RFQ.