

RUTHERFORD APPLETON LABORATORY
ISIS ACCELERATOR DIVISION

Low Output Impedance Driver Collaboration Meeting

**Actions from the meeting held on Friday 18 January 2008 at 10:30
in Cosener's House, and by teleconference to ANL.**

ATTENDANCE:

David Findlay
Ian Gardner
Doug Horan

Yoshiro Irie
Andy Seville
John Thomason (Chair)

PLUS: Jeff Dooling, Bob Kustom, Mark Middendorf, Ali Nassiri by teleconference to ANL from 15:15 onwards.

1. It was agreed that repairs to equipment and experiments during January 2008 had been successful: modifications were made to the triode soft start unit, the Buck Regulator, the capacitance on the triode grid circuit and the slide regulator of the screen supply, all of which performed well. RF voltage to the cavity at swept frequency was achieved at 11 kV-peak on 17 January (the last day of the experimental period). This returned the experiment to the parameters achieved in the MICE hall in 2005, but now with more reliable equipment operation. However, there is still a significant amount of experimental work required before the equipment could be run with beam in SP6 of the ISIS synchrotron. This includes investigation of distorted RF waveforms, achieving automatic cavity tuning, operation of all the equipment from the ISIS LPRF equipment and the ISIS control system, and some soak testing of the entire system to prove reliability.

2. It was decided that a minimum of another 2 weeks' experimental time with the present set up in R5.4, plus an additional week's soak testing would be required. Before this period the following would be done by STFC staff:

- Replace flexible hoses in the cavity cooling circuit (this leaked on a number of occasions during the experiments in January 2008).
- Provide matched cables to take signals from R5.4 to the Diagnostics Room for phase comparison to facilitate automatic cavity tuning, *etc.*
- Provide a complete additional 2RF LPRF system to run LOI equipment from the ISIS MCR.
- Lay in cables and provide an break-out box in synchrotron SP6.
- Provide flexible pipework between R5.4 and synchrotron SP6 as a contingency against there not being enough ISIS 2RF cooling water available for all of the LOI kits. This would allow continued use of the 180 kW chiller to cool the tetrode in the LOI HPD. The total amount of cooling water required for the LOI HPD is 396 litre/minute.

- Do an independent check of the LOI cavity impedance.

3. A detailed discussion of the provisional ISIS running schedule identified the periods 19 May – 8 June 2008 and 4 August – 28 August 2008 as the next two possible periods for experiments in R5.4. Doug Horan felt that given the present financial constraints at ANL it was very unlikely that any ANL staff would be able to attend. Therefore the feasibility of these experimental periods would only depend on Yoshiro Irie's availability. He will check how this fits in with the JPARC commissioning schedule. If Yoshiro can attend in May/June it may still be possible to run with beam in synchrotron SP6 in August, subject to ISIS management approval. There is no other period suitable for LOI experiments during 2008, and as yet there is no ISIS schedule for 2009.