

Plan for MICE During ISIS User Run 2015/2

Change History

Version	Changes	Author	Date
1	First draft	C. Rogers	12/03/2015
2			
3			
4			

1 ISIS User Run 2015/2

During ISIS user run 2015/2, MICE intends to finish any outstanding commissioning and commence physics data taking. In this note the plan for MICE data taking is outlined. The currently planned dates of the ISIS user run are outlined below, all in calendar year 2015.

1.1 Data Campaign Plan

The overall data campaign plan was outlined in [MICE Step IV Commissioning and Operations Plan]. In this note, that plan is updated specifically for 2015/2, with some additional details added. Note the prioritised plan, outlined in Table 9 of that document.

1.2 ISIS User Run Dates

The most up-to-date ISIS run plans are available from [ISIS Beam Status].

MICE is not expected to operate in any machine physics period, except for a 16 hour duration activation run that has been requested. This will be scheduled by ISIS.

User run cycle	Start	End	Maintenance day
Run-Up ¹	Monday 25 May	Sunday 31 May	
2015/01a	Tuesday 2 June	Sunday 5 July	Wednesday 17 June
Machine Physics ¹	Monday 6 July	Monday 13 July	
2015/01b	Tuesday 14 July	Friday 24 July	
Machine Physics ¹	Saturday 25 July	Sunday 26 July	
Run-Up ¹	Monday 24 August	Sunday 6 September	
2015/02	Tuesday 8 September	Friday 16 October	Wednesday 23 September
Machine Physics ¹	Saturday 17 October	Sunday 18 October	
Run-Up ¹	Monday 26 October	Sunday 1 November	
2015/03	Tuesday 3 November	Friday 18 December	Wednesday 25 November

Table 1: ISIS running periods

1.3 ISIS User Run 2015 01

The beamline and cooling channel commissioning is expected to be completed during the 2015/01 user run. The run plan for this user run is summarised in [Plan For MICE During ISIS User Run 1a/1b]. Two scenarios are presented, an optimistic scenario and a pessimistic scenario. In the optimistic scenario, commissioning is completed bar 2 days of optics validation. In the pessimistic scenario, 3 shifts of EMR commissioning data and all data requiring the cooling channel magnets remain outstanding. In this scenario, the magnet commissioning is completed on 12th August.

The outstanding tasks, in the User Run 01 pessimistic scenario, are outlined in Table 2 below.

¹ Operational priorities to be determined by ISIS. Not open to regular data taking.

Task	Number of Shifts
EMR Commissioning	3
Tracker External Alignment	7
Alignment to Other Detectors	2
Beam-Based Alignment	14
Validation of Track Matching	2
Validation of Particle Identification	3
Beamline Commissioning	15
Optics Validation	21
Total number of shifts	64

Table 2: Outstanding tasks following user run 01 assuming pessimistic completion of the run schedule.

1.4 Absorber

Absorber empty or Lithium Hydride?

1.5 Magnets

During user run 2015/02 the magnets will operate in solenoid mode. This mode places less strain on the magnets while enabling validation of the optics and cooling channel properties.

1.6 Operations

Assume 20 shifts per week (i.e. no day shift on Wednesday), How many triggers per run? Are we at 4 V ms or 2 V ms in the end (in table 2 of [MICE Step IV Commissioning and Operations Plan])

2 Measurements

MICE will seek to make the following measurements.

2.1 Calibration

2.2 Conclusion of channel commissioning

MICE will conclude any outstanding commissioning that was not completed during User Run 2015/01

2.3 Validation of optics properties

Is this the same as “Commissioning, Optics validation?” - probably yes. The idea is, do “no absorber” measurements of cooling channel optics

2.4 Prioritised Measurements List

Table 9 of [MICE Step IV Commissioning and Operations Plan]

2.5 Detailed Measurements List

Table 3 of [MICE Step IV Commissioning and Operations Plan]

2.6 Field off, Multiple Coulomb Scattering

What data is required here?

2.7 Any other Special Energy Loss/MCS Measurements

Ping Brunel

2.8 Additional Beam Polarisation Data?

2.9 Non-Linear Optics Setting?

3 Bibliography

[ISIS Beam Status] Outline schedule available at <http://www.isis.stfc.ac.uk/beam-status/>

[Plan For MICE During ISIS User Run 1a/1b] Plan for user run 2015/01 available at <http://micewww.pp.rl.ac.uk/documents/131>

[MICE Step IV Commissioning and Operations Plan] MICE Step IV Commissioning and Operations, at November 2014 MPB <http://micewww.pp.rl.ac.uk/attachments/2897/2014-11-10-Step-IV-Commissioning-n-Operations.pdf>