

# MICE Magnetic shielding meeting: 2013-04-23: 15:00 BST

Venue at RAL: CR05 R18 (phone conference details circulated)

Present: MC, PS, PH, IT, KL, JW, KM, HW, JT, MG, CP, LC, MZ, VB, JC

## 1. Actions

- **CM:** Report to KM typical power dissipation in Tracker Cryo Weiner PSU; Stands. Superseded (see notes below)
- **KL:** JW requires input as regards way forward on study of substation components; KL needs to talk with JW. Stands.

### 1a. Comments from OsC, RLSR, MPB reviews KL

- Recommendation and comments from RLSR and MPB were discussed. Two actions:
  - **All:** Suggest possible reviewers for shielding review in Aug/Sep; and
  - **JT, HW:** Organise meeting between S. Plate, J. Tarrant, A. Nichols et al at RAL.
- In discussion, MC points out need to investigate effect of cutting slots in the magnetic shielding plate on the floor of the MICE Hall (slope on south side);

### 2. Magnetic model of MICE Hall: PS

- Issues last week were with problems with OPERA. Traced to a volume-meshing error that was not trapped by the error handling in the meshing part of the code. Presently seem to have solved the problem and solver is now running.
- Another model for Vector Fields has now been prepared and will be sent to VF later. Also need to look at the reduced model that VF had requested.
- Now beginning to address the Fry list; will look at items under north mezzanine.

### 3. Magnetic model of tracker cryostat KM

- Moving onto shielding of turbo because shielding of Weiner PSU has been completed. Need to move the Weiner shielding to a mechanical engineer.
  - **Action: KM:** Send to JT to consider mechanical design of magnetic shielding for the Weiner PSU;
- Turbo-pump shielding: see slides ... points noted:
  - Need to compare shielding solution to cost of a larger pump remote from the cryostat;
  - Solution presented; need to move to mechanical engineering; then prototype and test;
  - **Actions:**
    - **KM:** Send to JT to consider mechanical design of magnetic shielding for the turbo pump;
    - **KM,PS:** Check direction of field at the position of turbo pump

### 4. Magnetic model of racks and R9 MG

- See slides. Points noted:

- Meshing will be reviewed to see whether a smaller mesh size is required to look at the electronics or to allow objects to be placed at difference locations in the field of the FC;
- Figure of merit is provided by OPERA to indicate whether the meshing is working appropriately;
- Comparison of measurements in R9 in air can now be compared to initial versions of the model;

## 5. Stray field measurements at Wang

PH

- No report this week.

## 6. Partial return yokes: magnetic analysis and design

HW

- Forces on booster plates:
  - Additional forces are small compared to forces in the absence of the booster plates;
- Field leaking from gap between the end of the yoke plates and the end plates:
  - Small leakage in localised area close to the shield. The region is close to the tracker cryostat and may need to be checked.

## 7. Progress on magnetic measurements and validation of model

IT

- Hope to have some results with comparison with MG simulation in following week's meeting.

### 7.1 Progress on assessment of substation-components

JW

- Progress on this item awaits discussion noted action.

## 8. Schedule and plans, discussion

CMacW

- Milestones:
  - Modelling validation: Jun13;
  - Review of mitigations plan: Aug/Sep13;
  - Tracker shielding plan: Dec13; and
  - Infrastructure and facilities shielding: Apr14.

## 8. DONM:

21May13; 15:00 BST

## 10. AoB

- None.

## Summary of actions:

- **KL:** JW requires input as regards way forward on study of substation components;
- **All:** Suggest possible reviewers for shielding review in Aug/Sep; and
- **JT, HW:** Organise meeting between S. Plate, J. Tarrant, A. Nichols et al at RAL.
- **KM:** Send to JT to consider mechanical design of magnetic shielding for the Weiner PSU;
- **KM:** Send to JT to consider mechanical design of magnetic shielding for the turbo pump;
- **KM,PS:** Check direction of field at the position of turbo pump