**LhARA WP6 Meeting**

**Notes and Actions from meeting held on 27 October 2022**

**LhARA wiki location for documents related to this meeting:** [**here**](https://ccap.hep.ph.ic.ac.uk/trac/wiki/Research/DesignStudy/DesignAndIntegration/Meetings/2022/2022-10-27)

**Present:** Neil Bliss, Clive Hill, Ajit Kurup, Kenneth Long, Hywel Owen, Jaroslaw Pasternak, William Shields, Colin Whyte.

**Apologies:** None

General discussion about topics identified for the months ahead leading towards 2 key ITRF milestones:

* **Milestone** - Lattice optimisation, aperture estimation, parameter list & schematic diagram update by **31st January 2023**
* **Milestone** - Design Review (6 months) **23rd March 2023**

**Topics**

1. Simulations & Lattice
2. Parameter list
   * [**CCAP-TN-11 Issue 1**](https://ccap.hep.ph.ic.ac.uk/trac/wiki/Communication/Notes#General), Baseline for the LhARA design update, 23 Sep 2022.
3. Apertures
4. Magnet table – full parameter list, families, quantities
5. RF report – RF devices, RF power supplies, LLRF.
6. Diagnostics – Table of beam properties to be measured, type of devices chosen, quantities.
7. Vacuum specification – Vacuum flow sheet identifying
8. Timing & synchronisation
9. Radiation shielding report (Jan – May 2024)
10. Schematic Layout
    * [**1272-pa1-pm-sch-0001-v1.0-LhARA schematic**](https://stfc365.sharepoint.com/sites/ITRF/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FITRF%2FShared%20Documents%2F1272%20ITRF%2Fpa1%20%2D%20Preliminary%20Activity%201%20%28CDR%29%2Fpm%20%2D%20Project%20Management%2Fsch%20%2D%20Schematics&viewid=1424441e%2Df81a%2D4a68%2Daf73%2D2ff52b49406e)
11. Device naming convention
    * [**1272-pa1-ctrl-rpt-0001-v0.3-LhARA-device-naming**](https://stfc365.sharepoint.com/sites/ITRF/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FITRF%2FShared%20Documents%2F1272%20ITRF%2Fpa1%20%2D%20Preliminary%20Activity%201%20%28CDR%29%2Fctrl%20%2D%20Control%20Systems%2Frpt%20%2D%20Reports&viewid=1424441e%2Df81a%2D4a68%2Daf73%2D2ff52b49406e)
12. Power consumption, water cooling, HVAC
13. Sustainability
14. Controls tables – input information, full list of devices ……………….
15. CAD model
16. Cost model

Ajit Kurup confirmed that the latest LhARA parameters are available in LhARA Technical note [**CCAP-TN-11 Issue 1**](https://ccap.hep.ph.ic.ac.uk/trac/wiki/Communication/Notes#General) **,** which was updated on23rd September 2022.

Will Shields presented slides describing the capability of Pyg4ometry & BDSI and how the software can be used to transfer CAD data in for simulations. Cad into GDML for example and possible to generate accurate loss and energy deposition estimations. Degenerate EM component geometries, inspect CAD models, reduce complexity……..

See presentation, document: [**20221027\_WShields**](https://ccap.hep.ph.ic.ac.uk/trac/attachment/wiki/Research/DesignStudy/DesignAndIntegration/Meetings/2022/2022-10-27/20221027_WShields.pdf)

The [27th Geant4 Collaboration Meeting](https://indico.cern.ch/event/1156193/) was held on 26-30 September 2022.

Neil Bliss described work done earlier in the year (March) with Jaroslaw Pasternak, to make a 1st pass on the Magnet table and LhARA schematic using a proposed device naming convention to identify equipment.

Neil Bliss also described the overview of a Radiation Shielding Study to be conducted by TUV SUD, which will be part of the LhARA WP6 presentation at the LhARA Review on 27 October.

Document: [**1272-pa1-wp2-prs-0002-v3.0-LhARA-review-WP6-infrastructure-2022-10-27**](https://stfc365.sharepoint.com/sites/ITRF/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2FITRF%2FShared%20Documents%2F1272%20ITRF%2Fpa1%20%2D%20Preliminary%20Activity%201%20%28CDR%29%2Fwp2%20%2D%20Facilities%20%26%20Costing%2Fprs%20%2D%20Presentations&viewid=1424441e%2Df81a%2D4a68%2Daf73%2D2ff52b49406e)

Slides: 16, 21 – 24.

LhARA Review (26 -27 October) presentations: [here](https://ccap.hep.ph.ic.ac.uk/trac/wiki/Research/DesignStudy/Reviews/AugSep22/Review/29-30Sep22)

**Actions**

1. **Ajit Kurup** to send link to the parameter lists **CCAP-TN-11 Issue 1** (see link above)
2. **Clive Hill** to send the LhARA CAD model in STEP format to Will Shields.
3. **Neil Bliss** to send links to the schematic diagram and the proposed LhARA device naming convention. (see links above)
4. **Ajit Kurup** to obtain permission for Neil Bliss to upload documents to the LhARA wiki through his links with Imperial College.

The next WP6 meeting on 1st November to focus on the following topics:

1. Simulations
2. Parameters
3. Apertures & Magnet Table
4. Schematic
5. Device Naming Convention