Version 2.2

**Work Site Permit (WSP)**

PowerLabDK, DTU Lyngby Campus

**The WSP must at all-time be filled out and signed in accordance with *“Safety regulations and safety procedures for PowerLabDK, DTU Lyngby Campus”*. The WSP shall *always* be kept at the work site in the laboratory in the project period specified below.**

**Registration of activity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Identification of activity, Title:** | | | **Battery testing and characterization of VW ID 3 battery modules for use in DTU ROAST solar car** | | | |
| **Brief description of the activity utilizing PLDK facility** | | | | | | |
| Test of battery modules for obtaining a characterization of the battery module. As no official battery documentation is available from the manufacturer LG Chem and the vendor VW, the testing will be based off specifications given by the online shop EVshop.eu. The goal of the tests is to verify that the specifications are true in order for the batteries to be incorporated in a solar vehicle.  The characterization will include:   * A capacity test of the batteries * An OCV test (Open-Circuit Voltage), in order to obtain a voltage curve of the batteries * A test of the internal resistance in the battery based on different SoC (State of Charge)   The tests will be conducted with LAB EQUIPMENT SETUP GOES HERE  PICTURES OF BATTERIES, LAB EQUIPMENT AND HIGH LEVEL DIAGRAM CONNECTIONS | | | | | | |
| **Responsible for the test setup:**  *By my signature I declare to have read and will follow the “Safety regulations and safety procedures for PowerLabDK, DTU Lyngby Campus”.* | | | | | *The person responsible for the test setup has the overall responsibility for the design of the test setup.* | |
| Name | | Victor Alexander Hansen | | | Date and signature | |
| Phone No | | +45 22 37 44 92 | | |
| Name | | Oliver Asger Hjortshøj Schreyer | | |
| Name | |  | | |  | |
| Phone No | | | | | *Contact person at PowerLabDK, DTU Lyngby Campus* | |
| Name | | Nenad Mijatovic3 | | | Date and signature | |
| Phone No | | +45 45 25 35 25 | | |
| E-mail | | nemi@dtu.dk | | |
| **Project period:**  Max. 6 months validity | | | | Start date | 20[24 - mm - dd] | |
| End date | 20[24 - mm - dd] | |
| **Allocated laboratory space:** | | | | Building & room | LY329 – [xxx] | |
| LabCell no. | [NN] | |
| Stud. Lab Table no. | [NN] | |
| **Allocated equipment:** | | | | Amplifier | Yes □ / No □ | |
| RTDS racks | Yes □ / No □ | |
| PMU Lab | Yes □ / No □ | |
| HV supply | Yes □ / No □ | |
| EV Infrastructure | Yes □ / No □ | |
| Other special equip. | Yes □ / No □ | |
| **Activity information:** | | | | Activity type(s):  Set [x] | Research (incl. PhD-projects) |  |
| Education (Courses & student projects) | x |
| Commercial |  |
| CEE Project no. |  | |
| In cooperation with external partner? | Yes □ / No [x]  [name of partner] | |
| **Authorized responsible for the laboratory/facility:** | | | | | *The authorized person responsible for the laboratory approves that the laboratory space is allocated to the activity described above in the mentioned period of time, and that the installation can begin accordingly by the person responsible for the test setup.* | |
| Name |  | | | | Signature | |
| Date |  | | | |
| **WSP No.**  *To be added by ADM controller* | | | | | 20[yy-NN] | |
| **Administrative controller:** | | | | | *Registration confirmed.* | |
| Name |  | | | | Signature | |
| Date |  | | | |
| Comment |  | | | | | |

**Approval of the test setup**

**You do not need to fill in this section if the test setup exclusively includes remotely access to the RTDS or the SCADA-server. I.a. a test without use of any other equipment and without any physical activity in the lab.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Equipment in use:** When >1500VDC or >1000VAC the separate rules ‘Safety Regulations’ regarding’ work in the High Voltage Laboratory, DTU Elektro, Bldg. 329’ have to be followed. | | | | | | | | | |
| Equipment under test  Voltage level Set [x] | | < 60VDC  < 25VAC | [x] | | | > 60VDC  > 25VAC |  | >1500VDC  >1000VAC |  |
| Equipment under test  Protected current level Set [x] | | <10A | [x] | | | > 10A  < 63A | [x] | > 63A  or no fuse |  |
| Energy storage [kWh/MJ] | | 6.85 kWh | | | | Pressure/flow systems | | Yes □ / No [x] | |
| Rotating machines | | Yes □ / No [x] | | | | Gas | | Yes □ / No [x] | |
| Combustion machines | | Yes □ / No [x] | | | | Laser | | Yes □ / No [x] | |
| Other equipment | |  | | | |  | |  | |
| **The test setup is remote controlled and warning signs are placed clearly and visible:** | | | | | | Yes □ / No □ | | | |
| **Hazard classification of the materials** **in use** (flammable, toxic, corrosive etc.)**:** | | | | | | | | | |
| Requirement of workplace instructions (Arbejdspladsbrugsanvisninger, APB) at the laboratory space | | | | | | | | Yes □ / No □ | |
| Hazard(s) Description of the material(s) | | | | | | | | | |
| **Technical requirements: (if required mark X)** | | | | | | | | | |
| Fume hood | |  | | | Avoid open fire | | |  | |
| Local exhaust ventilation | |  | | | Detectors | | |  | |
| Special work room | |  | | | Other | | |  | |
| **Requirements to safety equipment: (if required mark X)** | | | | | | | | | |
| Firefighting equipment | |  | | | Shielding equipment | | |  | |
| Emergency stop for gas etc. | |  | | | Other | | |  | |
| **Requirements to personal safety equipment: (if required mark X)** | | | | | | | | | |
| Safety glasses | |  | | | Helmet | | |  | |
| Earmuffs | |  | | | Face shield | | |  | |
| Gloves | |  | | | Dust filter mask | | |  | |
| Safety shoes | |  | | | Other | | |  | |
| **Requirements to special first aid equipment: (if required mark X)** | | | | | | | | | |
| Eyewash bottles | |  | | | Running water | | |  | |
| Emergency shower | |  | | | Other | | |  | |
| **Authorized expert:** | | *The authorized expert confirms that the test setup is reviewed and made to meet the ”Safety rules and safety procedures for PowerLabDK, DTU Lyngby Campus”* | | | | | | | |
| Name |  | | | Signature | | | | | |
| Date |  | | |
| Comment |  | | | | | | | | |

**Dismantling of the test setup**

|  |  |  |  |
| --- | --- | --- | --- |
| **Statement of completion:** | | | |
| Any defect equipment has to be marked clearly as such and handed to the authorized responsible for the  laboratory or a laboratory technician.  Equipment OK? | Yes □ / No □ | Waste disposed of? | Yes □ / No □ |
| Work space cleared and ready for the next user? | Yes □ / No □ | Other |  |
| **Responsible for the test setup** | | Date | |
| Signature | |
| **Statement of completion accepted:** | | | |
| **Authorized responsible for the laboratory** | | Date | |
| Signature | |
| ***Registration confirmed.*** | | | |
| **Administrative controller:** | | Date | |
| Signature | |

***Logbook for activities in PowerLabDK, DTU Lyngby Campus***

The logbook shall always be kept updated and available as part of the WSP located at the test setup. Additional pages can be added to the WSP as needed.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Identification of test setup:** | | Title |  | | |
| Acronym (max 12 characters) |  | | |
| **Test period (for the specific test run):** | | | | Start date | 20 - - T : |
| End date | 20 - - T : |
| **Responsible for the test:** | | | | *The person responsible for the test is an authorized expert or instructed person and familiar with “Safety regulations and safety procedures for PowerLabDK, DTU Lyngby Campus”*. | |
| Name |  | | | Date and signature | |
| Phone No. |  | | |
| E-mail |  | | |
| **Test participant(s):** | | | | *The persons are authorized experts or instructed persons and familiar with “Safety regulations and safety procedures for PowerLabDK, DTU Lyngby Campus”*. | |
| Name |  | | | Date and signature | |
| Phone No. |  | | |
| E-mail |  | | |
| Name |  | | | Date and signature | |
| Phone No. |  | | |
| E-mail |  | | |
| Name |  | | | Date and signature | |
| Phone No. |  | | |
| E-mail |  | | |
| Name |  | | | Date and signature | |
| Phone No. |  | | |
| E-mail |  | | |
| Name |  | | | Date and signature | |
| Phone No. |  | | |
| E-mail |  | | |
| **Safety guard:** | | | | *The person is Safety guard and familiar with “Safety regulations and safety procedures for PowerLabDK, DTU Lyngby Campus”*. | |
| Name |  | | | Date and signature | |
| Phone No. |  | | |
| E-mail |  | | |
| **Comments (additional comments in separate sheet):** | | | | | |