**LFEV-Y5**

v0.1

**Lafayette College: Electrical and Computer Engineering**

Acceptance Test Plan: v0.1

Greg Flynn

This document outlines all of the tests required to deliver LFEV-Y5. The plan is presented as an overview with the ATP number next to the test. This refers to the document that describes the test. The requirements are from the SoW for 2017

08

**Fall**

Table of Contents

[ATPs 3](#_Toc475601088)

[Deliverables 4](#_Toc475601089)

[Experiments 4](#_Toc475601090)

# ATPs

None of these tests can be viewed as completed until appropriate documentation has been uploaded to the webpage.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Item description | Demonstrated Requirements | Successful Test Criteria | Verification Method |
| ATP-01 | Accumulator Verification | R001a | Pack can deliver 200A into a simulated load without seeing unexpected voltage drops | Test |
| ATP-02 | Accumulator integration | R001a  R001c  R001d  R001e | Packs power motor and all telemetry is recorded by VSCADA | Test |
| ATP-03 | Accumulator charging | R001b  R001g | Packs charge by the charging port and open the safety loop  VSCADA reacts correctly | Test |
| ATP-04 | Accumulator low current output | R001f | Packs discharge through 10A load at pack voltage | Test |
| ATP-05 | Remote telemetry | R002d | DAQ of cooling, TSI, TSV and GLV via cell phone app and remote computer | Test |
| ATP-06 | CAN Bus link |  | DAQ by VSCADA of TSI, GLV, TSV, Cooling | Test |
| ATP-07 | Safety loop |  | Fault by:  Crashing  BRB  IMD  Cooling  VSCADA limit  Pack fault  Throttle fault  Brake fault |  |
| ATP-08 | Cruise Control |  | Motor can maintain custom speed |  |
| ATP-09 | 24h endurance test |  |  |  |
| ATP-10 | Unexpected shutdown |  | VSCADA works after unexpected GLV shutdown  Packs stop powering motor with GLV shutdown |  |
| ATP-11 | VSCADA interchangeability |  | Add and remove certain sensors based on configuration file |  |
| ATP-12 | Cabling labels |  | Verify all cables are labeled clearly | Inspection |
| ATP-13 | Packs have required data and buttons on screen | R001e | Images of different Pack menus | Inspection |
| ATP-14 | Packs open safety loop with appropriate faults | R001e  R001g | Verify packs open safety loop with unsafe conditions | Test |
| ATP-15 | Telemetry on dash | R002a  R002b | Dash contains important information and updates as required | Inspection |
| ATP-16 | Maintenance mode | R002e | Configure sensors in maintenance mode  Bypass safety modes  Read all sensors calibrated and not calibrated | Test |
| ATP-17 | Demo mode | R002g | VSCADA can fill in simulated data as required | Test |
| ATP-18 | VSCADA controls safety loop | R002m | VSCADA exceeds user defined parameters and trips the safety loop | Test |

# Deliverables

To count as delivered it must be uploaded to the website and emailed to all required professors. After this it must be accepted by all of them.

|  |  |  |
| --- | --- | --- |
| Deliverable | Item description | Successful Test Criteria |
| D000 | PDR presentation and report | Presented PDR.  Uploaded PDR to webpage  Uploaded PDR minutes to webpage |
| D001 | CDR Report, Presentation, Demos | Present CDR  Demo some parts of the HW  Demo communication link  Upload CDR minutes to webpage  Demo UI |
| D002 | User Manuals | Compiled extensive list of module operation |
| D003 | Final Report and Maintenance Manual | DVD delivered and accepted by all course instructors and ECE head |
| D004 | ATP | Document approved  Document uploaded to site |
| D005 | ATR | Document approved and uploaded |
| D007 | Webpage | Keep updated every week  Post appropriate ATRs 24h after test |
| D008 | Final delivery and presentation | Demo integrated and tested system  Video submitter |
| D009 | Conference paper, presentation and video | EITHER:  Video showing system  OR  Live demo of system  Presentation performed at conference |
| D010 | Posters | Ready for Final presentation |
| D012 | Maintainability plan | Presentation completed |
| D013 | Purchasing Report | All required statistics provided |
| D014 | PM + PSLs | Compiled every weekend  Presented at the start of every week |

# Experiments

To end an experiment the last step should be submission of the data to the webpage.

|  |  |  |
| --- | --- | --- |
| Item | Item description | Demonstrated Requirements |
| EXP-01 | Accumulator Simulator | R001a (without DAQ) |

# Compliance Matrix

|  |  |
| --- | --- |
| Requirement | Test(s) to demonstrate acceptance |
| R001a | ATP-01 OR ATP-08, OR ATP-10 |
| R001b | ATP-03 |
| R001c | ATP-06 |
| R001d | ATP-13 |
| R001e | ATP-13 |
| R001f | ATP-04 |
| R001g | ATP-03 AND ATP-14 |
| R002a | ATP-15 |
| R002b | ATP-15 |
| R002c | ATP-05 |
| R002d | ATP-05 |
| R002e | ATP-16 |
| R002f | ATP-02 |
| R002g | ATP-17 |
| R002h | ATP-03 |
| R002i | None |
| R002j | ATP-15 OR ATP-16 OR ATP-17 |
| R002k | ATP-11 |
| R002l | ATP-08 |
| R002m | ATP-18 |
|  |  |