**LFEV-Y5**

v0.1

**Lafayette College: Electrical and Computer Engineering**

Acceptance Test Plan: v0.1

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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**

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# 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 integration | R001a  R001c  R001d  R001e  R002a  R002c  R005b (Manual) | Packs power motor and all telemetry is recorded by VSCADA. Control by using the throttle.  Verify by accelerating and looking at dash, pack screens, and log files remotely | Test |
| ATP-02 | Accumulator charging | R001b  R001g  R002b  R002h (TSV part) | Packs charge by the charging port and open the safety loop  VSCADA reacts correctly  Verify by looking at the dash | Test |
| ATP-03 | CAN Bus link | R002a  R002c  R002d  R002e  R002f  R002g  R002j  R002k  R003a(8)  R003d  R004a (CAN Bus part)  R005a (CAN Bus part)  R005c (CAN Bus part)  R007c  R007d | DAQ by VSCADA of TSI, GLV, TSV, Cooling. Verify by looking at cell phone and looking at dash and remote computer in each mode of VSCADA | Test |
| ATP-04 | Safety loop | R001g  R002b  R002c  R002d  R002k  R002m  R003b  R003c  R003d  R004a (Safety loop part)  R005c (IMD fault)  R007b | Fault by:  Crashing  BRB  IMD  Cooling  VSCADA limit  Pack fault  Throttle fault  Brake fault  User defined limit (warn)  User defined limit (halt)  Pack charging  Verify by looking at the dash, the remote computer and the cellphone | Test |
| ATP-08 | Cruise Control | R002l  R005b (Software) | Motor can maintain custom speed  Verify by examining | Test |
| ATP-09 | 24h endurance test | GPR006 | At the end of all other tests leave the car running for 24h | Test |
| ATP-10 | Unexpected shutdown | R002k | VSCADA works after unexpected GLV shutdown  Packs stop powering motor with GLV shutdown | Test |
| ATP-11 | Expected shutdown | R002i | All hardware is put into a safe state for storage. Check packs and all boards are off | Test |
| ATP-12 | Remote logging |  |  |  |
| ATP-13 | GLV Charging | R002h (GLV part)  R003a(4) | Charge the GLV battery. Check VSCADA responds as expected |  |
|  |  |  |  |  |

# 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 |
| R001b | ATP-02 OR https://sites.lafayette.edu/ece492-sp16/files/2016/05/QAR001b.pdf |
| R001c | ATP-01 |
| R001d | ATP-01 |
| R001e | ATP-01 |
| R001f | https://sites.lafayette.edu/ece492-sp16/files/2016/05/QAR001e.pdf |
| R001g | ATP-02 |
| R002a | ATP-03 |
| R002b | ATP-02 |
| R002c | ATP-03 OR ATP-04 |
| R002d | ATP-03 OR ATP-04 |
| R002e | ATP-03 |
| R002f | ATP-03 |
| R002g | ATP-03 |
| R002h | ATP-02 OR ATP-03 |
| R002i | ATP-02 AND ATP-13 |
| R002j | ATP-03 |
| R002k | ATP-03 |
| R002l | ATP-08 |
| R002m | ATP-04 |
| R003a(1) | ATP-13 |
| R003a(2) | QA by GLV |
| R003a(3) | QA by GLV |
| R003a(4) | QA by GLV |
| R003a(5) | QA by GLV |
| R003a(5) | QA by GLV |
| R003a(6) | QA by GLV |
| R003a(7) | ATP-13 |
| R003a(8) | ATP-03 |
| R003b | ATP-04 |

# Waived requirements

|  |  |
| --- | --- |
| Requirement | Reason |
| R003a(4) | Cannot tell if GLV is battery or 24VDC |
| R002h | Cannot tell if GLV is battery or 24VDC |