**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 procedure. The requirements are from the SoW for 2017

08

**Fall**

# 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  R004a (TSV part)  R005a  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 | 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 desired speed  Verify by checking motor speed compared to target | 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 |

# Compliance Matrix

All requirements should also have a QA by each subsystem.

|  |  |
| --- | --- |
| 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-01 or ATP-03 |
| R002b | ATP-02 |
| R002c | ATP-01 OR ATP-03 OR ATP-04 |
| R002d | ATP-01 OR 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) | Any ATP |
| 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) | QA by GLV |
| R003a(8) | ATP-03 |
| R003b | ATP-04 |
| R003c | QA by GLV |
| R003d | ATP-03 |
| R004a | ATP-01 AND ATP-03 AND ATP-04 |
| R004b | QA by Interconnect |
| R005a | ATP-01 AND ATP-03 |
| R005b | ATP-01 AND ATP-08 |
| R005c | ATP-04 |
| R005d | QA by TSI |
| R006 | Any ATP |
| R007a | QA by Cooling |
| R007b | ATP-04 |
| R007c | ATP-03 |
| R007d | ATP-03 |
| R007e | QA by Cooling |
| R007f | QA by Cooling |
| R007g | QA by Cooling |

# Waived or modified requirements and questions

|  |  |
| --- | --- |
| Requirement | Reason |
| R003a(4) | Cannot tell if GLV is from the battery or 24VDC |
| R002h | Cannot tell if GLV is from the battery or 24VDC |
| R007e | I don’t like configuring this over CAN something else?  Suggestion use UART to be able to configure parameters  But this would need a new connector on the box… |
| GPR005 | 25mW components? Is this correct? Doesn’t almost every component dissipate this much?  Sealing procedure? We don’t use one yet but we have tested HV circuits. I plan to use last year’s plan |
| R005d | We’ve changed the switches |
|  |  |