

To: LFEVY42016 Team
From: Geoff Nudge
Date: 5/7/2016
Subject: QAR001b - Data Acquisition

Abstract

This QA item involves testing that data is properly acquired from AMS boards and sensors on PacMan. This includes cell temperature and voltage from AMS; and pack voltage, pack current, and SOC.

Technical Findings

The calibration and accuracy of these sensors was evaluated in D001 (<https://sites.lafayette.edu/ece492-sp16/files/2016/04/CalibrationandAccuracyReport.pdf>).

PacMan code (v0.14) checks the values acquired from the sensors to see that they fall in the range of possible values (failed transmission results in 00 or FF depending on the sensor) and transitions to the fault state in the case of an unsuccessful transmission (this has been observed with bricked AMS boards and burnt INA226 current sensor ICs).

CAN transmission has been tested in all the desired configurations. Transmissions were successful.

Recommendations and Conclusions

ATP lists the following with regards to data acquisition:

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1. Calibration Accuracy and Analysis (D011)
2. Test I2C messages
3. Test all CAN messages with Lab Terminal, in test stand, in all states
4. Test all CAN messages with VSCADA board, in test stand, in all states
5. Test all CAN messages with Lab Terminal, in Accumulator with LiFePO4 cells, in all states
6. Test all CAN messages with VSCADA board, in Accumulator with LiFePO4 cells, in all states

The tests were successful. No additional work is needed in this area unless other data values are desired by VSCADA for logging.