Fuel Cell Monitor System

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**VALIDATION PLAN**

Revision – 2

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Fuel Cell Monitor Validation Plan

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| Paragraph # | Test Name | Success Criteria | Methodology | Status | Responsible Engineer(s) |
| 3.2.4.2 | Power Devices On PCB | PCB transfers power without overheating or burnout | Power Board and watch, smell, listen | Untested | Russell, Sameer |
| 3.2.1.1 | Internal signal voltage range | System can properly handle the specified voltages with minimal difference between tests. | Introduce voltages of 0-4V and measure output signals | FAIL | Russell |
| 3.2.1.1 | Differential voltage tests | Pass a differential voltage through the Opamp buffer and receive the proper digital signal from the optoisolator | Introduce a range of voltages including edge cases and ensure proper output | Untested | Russell, Sameer |
| 3.2.4.4 | Android application graphical functionality | Application can properly display accurate voltage levels to user. | Use application on android device and verify volatages are accurately displayed | Passed | Jessica |
| 3.2.4.4 | Android application database read and write data functionality | Application can properly read and write data from Firebase Database | Graph uses data pulled from the database as values | Fail | Jessica |
| 3.2.4.4 | Android application database connectivity | Application can connect to Firebase Database | Verify connection status within application | Passed | Jessica |
| 3.2.4.4 | Android application alarm functionality | Application send alarm to user when voltage goes above or below ranges | Add set points to app and introduce alarm level voltages | Untested | Jessica |
| 3.2.4.2 | Power system functionality test | Power is applied from wall outlet and proper power transfer is read at outputs | Apply power to system and read voltage output at device trace | Untested | Sameer |
| 3.2.4.1 | Opamp system functionality test | Differential voltages are passed to the opamp and expected voltage is seen on the output | Power opamps and apply varrying differential voltages and read output voltage | Untested | Sameer |
| N/A | PIC32 Microcontroller functionality test | The code for recieving the voltage signal for data acquisition | PCB board and coding on IDE | Untested | Rana |
| N/A | ESP32 Microcontroller functionality test | The code for communicating with the application | PCB board and coding on IDE | Tested | Rana |