Test Plan Overview

Hardware:

Main Board:

-Visually inspect board for issues or inconsistencies with layout

-Verify connections, (continuity)

-Populate board

-Verify Solder connections

-Verify power levels

-Verify clock signal presence

-Verify clock signal frequencies

-Attempt to upload test binary

-If upload successful run “Hello world”/blink program

-Upload real firmware

Daughter Boards:

-Visually inspect board for issues or inconsistencies with layout

-Verify connections, (continuity)

-Populate board

-Verify Solder connections

-Verify power levels

-Verify clock signal presence

-Verify clock signal frequencies

-Connect daugter board to “known good” device such as Arduino, verify readings, etc.

Main board and ADC sensor:

-Sample ADC sensor, verify against “known good” values

Main board and I2C sensor:

-Sample I2C sensor, verify against “known good” values

Full Assembly, (Hard Faults)

-Remove Power

-Remove ADC sensor while running

-Remove ADC sensor during sampling

-Remove I2C sensor while running

-Remove I2C sensor during sampling

-Remove SD Card while running

-Remove SD Card while sampling

-Observe behavior near brown-out power levels

- Attempt to sample nonexistent sensors

-Attempt to read from bad I2C addresses

Software (Full assembly):

-Sample ADC sensor, verify against “known good” values

-Sample I2C sensor, verify against “known good” values

-Verify SD card data present/consistent

-Verify accuracy of timestamps

-Verify naming of data on card

-Eavesdrop serial communication from “known good” platform

-Attempt to inject intentional error conditions, bad chars, memory locations, etc.