Transmission Power Monitoring System Test Plan

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Test 1: Secure access to Raspberry Pi dashboard

Preconditions:

- Make sure all parts of the system are online.

Test Actions:

1. Visit the Raspberry Pi dashboard in the browser. (http://hostname:4000/ui).
2. Enter the username.
3. Enter the password.
4. Then click sign in.

Expected Outcomes:

- You should be asked to sign in and then once signed in you should be able to see the Raspberry Pi dashboard.

Results and Comments:

Test 2: Are all sensors providing readings to the Raspberry Pi

Preconditions:

- Test 1 has been completed.

Test Actions:

1. Navigate to the ‘Thermistor In’ and ‘Thermistor Out’ sections of the dashboard.

Expected Outcomes:

- You should be able to see a reading for resistance in ohms, a coefficient value, and a reading for the temperature in degrees Celsius.

Results and Comments:

Test 3: Set the site name

Preconditions:

- Test 2 has been completed.

Test Actions:

1. Enter the name ‘Rowridge’ into the site name input in the ‘site configuration’ section.

Expected Outcomes:

- You should see the site name update in the site values section of the dashboard.

Results and Comments:

Test 4: Set the transmitter name

Preconditions:

- Test 3 has been completed.

Test Actions:

1. Enter the name ‘Transmitter3’ into the ‘Transmitter Name’ input in the ‘site configuration’ section.

Expected Outcomes:

- You should see the transmitter name update in the ‘Site Values section of the dashboard.

Results and Comments:

Test 5: Set the site code

Preconditions:

- Test 4 has been completed.

Test Actions:

2. Enter the site code ‘ROW’ into the ‘Site Code’ input in the ‘site configuration’ section.

Expected Outcomes:

- You should see the site code update in the ‘Site Values section of the dashboard.

Results and Comments:

Test 6: Set site longitude

Preconditions:

- Test 5 has been completed.

Test Actions:

1. Enter the ‘-1.365939941365424’ into the ‘Site Longitude’ input in the ‘Site Configuration’ section.

Expected Outcomes:

- You should see the sites longitude update in the site configuration section of the dashboard.

Results and Comments:

Test 7: Set site latitude

Preconditions:

- Test 6 has been completed.

Test Actions:

1. Enter the ‘50.67010550875724’ into the ‘Site Latitude’ input in the ‘Site Configuration’ section.

Expected Outcomes:

- You should see the sites latitude update in the site configuration section of the dashboard.

Results and Comments:

Test 8: Set the coefficients

Preconditions:

- Test 7 has been completed.

Test Actions:

1. Enter ‘0.0035’ into the ‘Coefficient In’ and ‘Coefficient Out’ inputs in the ‘Testing Sensor Configuration’ section.

Expected Outcomes:

- You should see the coefficients in the ‘Sensor Values’ section of the dashboard update to the coefficients entered.

Results and Comments:

Test 9: Set the Resistances

Preconditions:

- Test 8 has been completed.

Test Actions:

2. Enter ‘114’ into the ‘Resistance In’ input, then enter ‘128’ into the ‘Resistance Out’ input in the ‘Testing Sensor Configuration’ section.

Expected Outcomes:

- You should see the resistance in and out change in the ‘Sensor Values’ section of the dashboard update to the resistances entered.

Results and Comments:

Test 10: Set the flow rate

Preconditions:

- Test 9 has been completed.

Test Actions:

3. Enter ‘40’ into the ‘Flow Rate’ input in the ‘Testing Sensor Configuration’ section.

Expected Outcomes:

- You should see the flow rate change in the ‘Sensor Values’ section of the dashboard update to the resistances entered.

Results and Comments:

Test 11: View the calculated power

Preconditions:

- Tests 8, 9, and 10 have been completed.

Test Actions:

1. Navigate to the ‘Power Calculation’ section of the dashboard.

Expected Outcomes:

- The ‘Power’ dial should read as 112 KW.

Results and Comments:

Test 12: Secure access to Grafana dashboard

Preconditions:

- Tests 8, 9, and 10 has been completed.
- Open a new browser tab.

Test Actions:

1. Visit the Grafana dashboard in the browser. (http://hostname:3000)
2. You will then be prompted for a username and password.
3. Enter the username.
4. Enter the password.
5. Click sign in.
6. Then click on the ArqivaTempTransmitter dashboard.

Expected Outcomes:

- You should see a dashboard with a list of sites and a map displaying site locations.

Results and Comments:

Test 13: View data for Rowridge site, transmitter 3

Preconditions:

- Test 12 has been completed.

Test Actions:

1. Click on Rowridge in the list of sites to the left of the map.
2. Scroll down to ‘Transmitter 3’.
3. Expand ‘Transmitter 3’.

Expected Outcomes:

- You should be able to see the transmitter 3 section expanded displaying the power level (112), temperature out (80), and a temperature history.

Results and Comments:

Test 14: End to end change of input temperature

Preconditions:

- Test 13 has been completed.

Test Actions:

1. Navigate to the Raspberry Pi Dashboard (http://hostname:4000/ui).
2. Scroll down to the ‘Testing Sensor Configuration’ section.
3. Ensure ‘Resistance In’ is set to 114, otherwise change it to 114.
4. Ensure ‘Coefficient In’ is set to 0.0035, otherwise change it to 0.0035.
5. Ensure ‘Resistance Out’ is set to 128, otherwise change it to 128.
6. Ensure ‘Coefficient Out’ is set to 0.0035, otherwise change it to 0.0035.
7. Ensure ‘Flow Rate’ is set to 40, otherwise change it to 40.
8. Scroll up to the ‘Power Calculation’ section.
9. Press the ‘Send Immediate Reading’ button.
10. Navigate back to ‘Rowridge transmitter 3’ on the Grafana page(http://hostname:3000)

Expected Outcomes:

- The ‘Power Level’ should display 112 and the ‘Temperature Out’ should display 80.

Results and Comments:

Test 15: View Data in Influx DB

Preconditions:

- Test 14 has been completed.

Test Actions:

1. Visit the Influx DB dashboard in the browser. (http://localhost:5000/).
2. Enter the username.
3. Enter the password.
4. Click sign in.
5. Click ‘Data’ from the menu on the left of the screen.
6. Select ‘Buckets’.
7. Click ‘TransmitterPower’.
8. In the ‘From’ box select ‘TransmitterPower’, then select ‘TransmitterReadings’ from the filter box that appears next to the ‘From’ box.
9. Tick the filter boxes ‘coefficientIn’, ‘powerLevel’, ‘resistanceIn’, and ‘tempIn’ and then press submit.

Expected Outcomes:

- The graph should display 4 values, coefficientIn (3,5), powerLevel (112), resistanceIn (114) and tempIn (40).

Results and Comments: