Whitebox Test

The “Whitebox test” verification is focused on testing “[functionalities and performance](../1)%20Requirements/3.%20SWRA_20190621.docx)”, and at the highest level verify that the “[conventions](../1)%20Requirements/3.%20SWRA_20190621.docx)” are met, as well as sub requirements of such.

This document is defined as such:

1.- Testing and verifying functionalities and performance.

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| Test Case ID | TC001 |
| SW | Version: V1.0 |
| Test Case Summary | Verify that ACD\_thread\_entry output is dutyCycle |
| Prerequisites | 1. The set point is 0% PWM 2. The set point is 25% PWM 3. The set point is 50% PWM 4. The set point is 75% PWM 5. The set point is 100% PWM |
| Test Procedure | 1. Modify step by step PWM % to meet precondition. |
| Test Data | 1. Denominations: % PWM 2. Quantities: 0, 25, 50, 75, 100 |
| Expected Result | 1. DutyCycle will vary depending PWM % |
| Actual Result | 1.-dutyCycle is 0 RPM  2.- dutyCycle is 554-567 RPM  3.-Verify that dutyCycle is 824 - 842 RPM  4.-Verify that dutyCycle is 2485 -2570 RPM  5.-Verify that dutyCycle is 3149 – 3205 RPM |
| Status | Pass |
| Remarks | This is a test. |
| Created By | Jesus Ramirez |
| Date of Creation | 11/10/19 |
| Executed By | Algemiro Gil |
| Date of Execution | 11/10/19 |
| Test Environment | * Unit Test. |

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| Test Case ID | TC002 |
| SW | Version: V1.0 |
| Test Case Summary | Verify that the frequency work load is set in the f = 100 Hz to f = 1 KHz, range. |
| Related Requirement | [SRS-Work load frequency range-002](../1)%20Requirements/3.%20SWRA_20190621.docx) |
| Prerequisites | 1. Configuration for frequency work load is set to 100 Hz. 2. Input- output connection to the Oscilloscope are available. 3. Output pin 46 is defined as signal outlet. |
| Test Procedure | 1. Turn on the oscilloscope and calibrate to read frequency. 2. Ensure, electric board is powered and configured to generate signal. 3. Verify that digital signal is generated in the specific frequency and read by the oscilloscope. |
| Test Data | 1. Denominations: Hertz 2. Quantities: 100 Hz |
| Expected Result | 1. Readout of the specific Frequency according to the quantities is met. |
| Actual Result | 1. If the specified quantity is valid, the result is as expected. 2. If the specified quantity is invalid, nothing happens; the expected message is not displayed |
| Status | Pass |
| Remarks | This is a “Conventions” test case. |
| Created By | Jesus Ramirez |
| Date of Creation | 11/10/19 |
| Executed By | Algemiro Gil |
| Date of Execution | 11/10/19 |
| Test Environment | * Manual Test. |

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| Test Case ID | TC003 |
| SW | Version: V1.0 |
| Test Case Summary | Verify that PWM duty cycle shall be defined after working frequency, from 0 – 100 range. |
| Related Requirement | [SRS-PWM Duty Cycle-003](../1)%20Requirements/3.%20SWRA_20190621.docx) |
| Prerequisites | 1. Configuration for frequency work load is set to 100 Hz. 2. Output is sent to display. |
| Test Procedure | 1. Direct display of the duty cycle is visible in LCD display. |
| Test Data | 1. Denominations: -- 2. Quantities: 0 - 100 |
| Expected Result | 1. Readout of the specific cycle according to the quantities is met. |
| Actual Result | 1. If the specified quantity is valid, the result is as expected. 2. If the specified quantity is invalid, nothing happens; the expected message is not displayed |
| Status | Pass |
| Remarks | This is a “Conventions” test case. |
| Created By | Jesus Ramirez |
| Date of Creation | 11/10/19 |
| Executed By | Algemiro Gil |
| Date of Execution | 11/10/19 |
| Test Environment | * Manual Test. |

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| REQ- 017 | Verify that ACD\_thread\_entry output is dutyCycle  1.-Verify that dutyCycle is 0 RPM  When  The set point is 0% PWM  2.-Verify that dutyCycle is 554-567 RPM  When  The set point is 25% PWM  3.-Verify that dutyCycle is 824 - 842 RPM  When  The set point is 50% PWM  4.-Verify that dutyCycle is 2485 -2570 RPM  When  The set point is 75% PWM  5.-Verify that dutyCycle is 3149 – 3205 RPM  When  The set point is 100% PWM | T |
| REQ- 019 | Verify that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ output is | T |
| REQ-021 | Verify that \_\_\_\_\_\_\_\_\_\_\_\_\_\_ output is | T |